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# Who Benefits from Deferred Entry to College?: Exploring the Relationships between College Deferment, Postsecondary Academic Success, and Institutional Selectivity

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# WHO BENEFITS FROM DEFERRED ENTRY TO COLLEGE?:

# EXPLORING THE RELATIONSHIPS BETWEEN COLLEGE DEFERMENT,

# POSTSECONDARY ACADEMIC SUCCESS, AND INSTITUTIONAL

# SELECTIVITY

A Dissertation Presented

by

GABRIEL H. REIF

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# DEDICATION

*To my Grandma, Ruth Swerdlow*

*And my daughter, Cascade Lynn Reif Matoney;*

*My foundation*

*And my hope*

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I want to extend my deepest gratitude to everyone who helped me achieve this goal of earning a Ph.D. First and foremost, I honestly believe I would not have reached this milestone without the love, support, and regular "nags" from my Grandma Ruth. Grandma -- since November 2017, you diligently followed my request and sent me over 200 emails encouraging me to stay on task and keep chipping away at my dissertation. I persevered because of your dedication and I am eternally grateful that you are in my life.

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Finally, as I look back at my past and ahead to my future and see all of the blessings surrounding me, I challenge myself to use the opportunities and gifts I have to be increasingly generous to those less fortunate than me and fight for a more equitable world.

**ABSTRACT**

**WHO BENEFITS FROM DEFERRED ENTRY TO COLLEGE?:**

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MAY 2022

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Prior research on delayed entry and gap years have produced conflicting results on the relationships between deferring entry to college and postsecondary academic success. Specifically, studies on delayed entry have linked the phenomenon to lower attainment rates, while the literature on gap years has shown a positive relationship with college GPA. These conflicting findings make it unclear for students, families, counselors, administrators, and policymakers to understand whether deferring entry to college is an opportunity that should be pursued by more individuals or if it is something to be avoided.

The focus of this dissertation was to bring prior findings on delayed entry and gap years in concert with one another and illuminate which groups of students, if any, achieve higher levels of postsecondary academic success after deferring entry to college. A key way this study built on prior research was by adjusting for institutional selectivity and examining whether it moderated the relationships between deferment and the two most commonly used outcome variables in the literature: on-time graduation rate and college GPA.

Using the Education Longitudinal Study of 2002 (ELS:2002) as my data source, I conducted OLS and logistic regression to test for significant relationships between variables of interest. Results showed that deferment was associated with lower attainment rates and college GPAs at highly selective colleges and less selective colleges, even when controlling for covariates. These relationships persisted when controlling for institutional selectivity and findings showed that institutional selection did not moderate the relationship between deferment and postsecondary success. Rather, students at highly selective and less selective colleges who deferred entry to college achieved lower levels of postsecondary academic success than their counterparts.

These results support prior research on delayed entry and challenge findings from the literature on gap years. The results of this dissertation push gap year scholars to more convincingly demonstrate which students, if any, benefit academically from deferring entry to college and what are the relevant factors that enable these individuals to outperform their peers. Additionally, findings from this dissertation have important implications for stakeholders ranging from high school students to policymakers.

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# CHAPTER 1

## Problem Statement

Since the middle of the 20th century, attainment of a college degree has been considered a critical step in helping individuals achieve social and economic mobility. Unfortunately, many students who enter the postsecondary pipeline stop out before attaining a credential. Hussar et al. (2020) reported that only 62 percent of college students earn a degree within six years of enrolling, while the four-year graduation rate is only 41% (Hanson, 2021).

There are substantial costs associated with students exiting higher education without attaining a degree. Students who begin college but do not earn a postsecondary credential invest time and money in their education, but do not have a degree to show for it. As a result, these individuals do not achieve the higher earning potential associated with a college degree. According to Hershbein and Kearney (2014), people with bachelor's degrees earn an average of $1.19 million over the course of their careers, which is double that of individuals who only have a high school diploma. Schneider and Yin (2011) reported that students who started college in 2002, but failed to graduate lost a total of $3.8 billion in income. Lower earnings also make it harder for people to pay back any loans they take out to attend college.

Additionally, when students fail to complete college, federal, state, and local governments are unable to capitalize on the investments they make in students' college education. State and federal governments spent $9 billion from 2003 to 2008 supporting students who never received a postsecondary credential (American Institutes for Research, 2010). Looking only at students who enrolled in college in 2002 and never

went on to graduate, the United States lost $566 million in federal income tax and $164 million in state income tax in a single year due to these individuals not attaining degrees.

Further, state and federal governments invest an average of $9,200 on every U.S. college student each year (Porter, 2013). When students earn a degree, government agencies reap substantial return on their investments through higher income taxes and lower unemployment rates. On the other hand, government agencies, as well as colleges and NGOs, do not realize the potential of their investments when they provide money to students who do not graduate from college.

A factor that may contribute to low postsecondary attainment rates is the large proportion of students who defer entry to college. Research shows that approximately one-third of college students defer entry to college after graduating high school (Horn, Cataldi, & Sikora, 2005; Roksa & Velez, 2012). Findings from studies on the phenomenon known as delayed entry have shown that students who do not immediately enroll in college after graduating high school are less likely to graduate from college than their peers who go directly to college (Attewell et al., 2012; Bozick & DeLuca, 2005; Goldrick-Rab & Han, 2011; Roksa & Velez, 2012). Adelman (1999, 2006) hypothesized that students lose "academic momentum" when they take a break from the education pipeline and this reduces their likelihood of graduating college once they enroll.

On the other hand, there is a growing body of literature on gap years, which indicates that taking a break from formal education between high school and college is related to favorable academic and developmental outcomes for students. Specifically, several empirical studies have shown that gap year participants receive better college grades than their peers who immediately enrolled in postsecondary education, while other

studies have indicated that gap year participants benefit from increases in academic motivation, advances in their identity development, and the tendency to make "thoughtful, internally-driven choices" (Tenser, 2015, p. 86; see also Birch & Miller, 2007; Clagett, 2013; Crawford & Cribb, 2012; Martin, 2010; Martin, Wilson, Liem, & Ginns, 2013).

The disagreement between literature on delayed entry and gap years is perplexing since they are essentially the same phenomenon: deferring entry to college after completing high school. There is an array of plausible explanations for why studies on delayed entry have linked postponing entry to college with negative outcomes, while research on gap years has shown that taking a break from formal education after high school promotes postsecondary success. These explanations include use of different outcome variables, varying definitions for what constitutes a gap year, including different covariates in statistical models, and conducting studies in different national contexts.

Another explanation for why studies on gap years have generally yielded positive findings while those on delayed entry have shown otherwise is because many gap year studies have focused exclusively on students at highly selective postsecondary institutions whereas studies on delayed entry have used nationally-representative datasets, in which a small proportion of students attend highly selective colleges. Prior research has not examined whether students who defer entry to college experience different outcomes based on the selectivity of the colleges they attend.

Many studies on delayed entry have shown a negative relationship between college deferment and postsecondary completion and have used US-based, nationally-representative datasets and statistically adjusted for prior academic performance and

socioeconomic status (Attewell et al., 2012; Bozick & DeLuca, 2005; Roksa & Velez, 2012). Meanwhile, almost all research demonstrating the positive effects of gap years has focused exclusively on students at highly selective institutions (Birch & Miller, 2007; Clagett, 2013; Martin, 2010; Martin et al., 2013; Tenser, 2015). Such research has primarily been conducted in Australia and the United States.

This dissertation brings the bodies of literature on gap years and delayed entry in concert with one another by incorporating attributes from both areas to shed light on which students, if any, perform better in college after deferring entry. Furthermore, the study explores whether institutional selectivity acts as a moderator of the relationship between deferment and academic success, leading to contrasting postsecondary outcomes for students who defer entry to college and attend highly selective institutions versus those who enroll in less selective colleges.

## **<u>Significance of the Study</u>**

In this dissertation, I aspire to produce new knowledge concerning the selectivity of postsecondary institutions where students who defer entry enroll. An additional objective of this study is to examine associations between college deferment, institutional selectivity, and the dependent variables of college GPA and attainment of a postsecondary degree, while statistically adjusting for relevant covariates (socioeconomic status, prior academic achievement). This approach teases out the relationships between institutional selectivity, college deferment, and postsecondary success. I also explore whether institutional selectivity functions as a moderator in the relationships between deferment and college GPA and attainment, thereby examining if selectivity is a contributing factor between the contrasting findings on delayed entry and gap years.

Inherent in my analyses is an examination of the differences in academic outcomes for students who defer entry to college compared to those who do not. In turn, I aim to generate a more nuanced understanding of which students, if any, benefit academically in college from taking a break from formal education between high school and college.

The existing literature on college deferment provides mixed messages to students, educators, policymakers, and others regarding the advantages and drawbacks of deferring entry to college. While some research shows that taking a formal break from education after high school is associated with lower college graduation rates, other studies indicate that students benefit academically and developmentally when they postpone postsecondary enrollment. This study aims to clarify whether college deferment is associated with positive, negative, or other academic outcomes for students, and whether these relationships vary for students who attend colleges with differing levels of institutional selectivity. This knowledge will enable an array of stakeholders to gain a more nuanced understanding of the relationship between college deferment and academic success. These parties will be able to use this information to make decisions that help more students achieve postsecondary success and increase college graduation rates in the United States.

This research is particularly timely because the early 2020s will likely bring an increase in the number of college students who defer entry to college. This is due to the relatively large number of students who decided to put off starting college because of the COVID-19 pandemic. In the fall of 2020, the number of first-time, first-year students enrolled in U.S. colleges dipped 13% from the previous year (Othot, 2020). One can

assume this decline was due in part to an increase in recent high school graduates opting to pursue activities other than college. When these individuals choose to start postsecondary education, they will have deferred entry and may be susceptible to any risks and benefits associated with starting college after a break from formal education.

## Research Questions

I utilize the nationally-representative Education Longitudinal Study of 2002 (ELS:2002), and apply ordinary least squares (OLS) and logistic regression to examine relationships between deferment and institutional selectivity with the outcome variables of college GPA and attainment of a college degree. I adjust for salient covariates in order to treat other factors as equal across students in the study. The study's dependent variables of college GPA and attainment of a postsecondary degree were chosen because prior research on college deferment has examined these measures and demonstrated contrasting relationships between them and postponing college entry after graduating high school.

The research questions for this study are:

1. How do students who defer entry compare with their peers who enroll immediately in college in terms of their demographics, their postsecondary success, and the selectivity of the four-year colleges they attend?

2. To what extent does deferred entry have disparate associations with college GPA and degree completion for students who attend four-year postsecondary institutions with varying levels of selectivity?

## Definition of Terms

Other scholars who have studied deferred entry have acknowledged that there is a high degree of ambiguity surrounding concepts in the literature (Jones, 2004). In this section, I define important terms in this dissertation and provide a rationale for my approach.

### Deferred Entry

I use the term "deferred entry" to describe all students who graduate high school and do not enroll in postsecondary education for the semester following their graduation. Many prior studies have used the terms "gap year" and "delayed entry" (Attewell et al., 2012; Birch & Miller, 2007; Bozick & DeLuca, 2005; Clagett, 2013; Goldrick-Rab & Han, 2011; Martin et al., 2013; Roksa & Velez, 2012; Tenser, 2015). I have chosen to avoid using these terms because research on gap years has generally shown that they are correlated with positive postsecondary outcomes (Birch & Miller, 2007; Clagett, 2013; Martin, 2010; Martin et al., 2013; Tenser, 2015), while studies on delayed entry have revealed that not immediately enrolling in college after completing high school is associated with a lower likelihood of attaining a degree (Attewell et al., 2012; Bozick & DeLuca, 2005; Goldrick-Rab & Han, 2011; Roksa & Velez, 2012).

Meanwhile, "deferred entry" is not associated with positive or negative outcomes in the literature and therefore provides a more neutral way of referring to the phenomenon of taking time away from formal education between high school and college. For the purposes of this study, college deferment serves as an umbrella term encompassing both delayed entry and gap years. I have chosen this language in an

attempt to distance this dissertation from the trends found in existing literature on delayed

entry and gap years, which I unpack in the following section.

<u>**Institutional Selectivity**</u>

Institutional selectivity is a measure that reflects the competitiveness of a

college's admissions process and the academic performance of students who are typically

admitted to the institution. In this study, I use Barron's College Admissions Selector

Ratings (Barron's) to determine the selectivity of colleges attended by ELS:2002

respondents. The rationale for choosing Barron's ratings is because they have been used

in many other studies that examined institutional selectivity (Baker, Klasik, & Reardon,

2018; Gansemer-Topf & Schuh, 2006; Kuh & Pascarella, 2004; Pascarella et al., 2006),

they cover four-year accredited colleges and universities, are updated on a regular basis,

and have been generated consistently since 1972.

Barron's ratings divide postsecondary institutions into the following seven tiers of

admissions competitiveness: most competitive, highly competitive, very competitive,

competitive, less competitive, non-competitive, and special (Center for Public Education,

2015) (See Table 1). These tiers were produced according to the median entrance exam

scores of incoming first-year students, the percentage of incoming first-year students

exceeding designated thresholds on these exams, the proportion of first-year students who

ranked in the top two quintiles of their high school class, admissions cut-offs for class

rank and high school GPA, and the percentage of applicants who were admitted (NCES,

2009).

## **Overview of Subsequent Chapters**

In the following literature review (Chapter 2), I define key terms and review studies from prior research on gap years and delayed entry. Afterward, I explore factors that may have led to the contradictory findings generated by these areas of research and indicate how the present study addresses weaknesses in the literature to produce important information regarding which students, if any, benefit from deferring entry to college. I also present the conceptual and analytic frameworks of this dissertation.

In the design and methods section (Chapter 3), I provide details on the dataset, variables, sample, methodological approaches, and analytic techniques I utilize to generate new knowledge regarding the relationships between postsecondary academic success and college deferment for students who attend colleges with differing levels of selectivity.

Chapter 4 contains descriptive statistics, including means and standard deviations for all variables, as well as cross-tabulations that show the characteristics of students in the sample by deferment status and institutional selectivity. I also provide the results of chi squares and t-tests comparing the distributions and means across groups. Subsequently, I review the assumptions of linear and logistic regression and show the results of regression models, including models that utilize institutional selectivity as a moderator to examine whether the relationships between deferment and postsecondary academic success vary for students who attend colleges of varying levels of selectivity. Lastly in Chapter 5, I discuss the scholarly and theoretical implications of the results of the study, as well as implications for practice, policy, and research.

## CHAPTER 2 – LITERATURE REVIEW

This discussion of the existing research on college deferment begins by exploring how previous studies have operationalized the terms "gap year" and "delayed entry," and addressing how I approach these terms in this dissertation. Subsequently, I describe findings from prior studies on these phenomena. Afterwards, I compare and contrast the findings from studies on delayed entry and gap years, seeking plausible explanations for why research on these nearly identical concepts have yielded contradictory results. I conclude this section with the presentation of conceptual and analytic frameworks, which describe the theoretical foundation for this dissertation and explain how it is framed by, and builds upon, previous research.

### Delineating Key Terms

One substantial challenge with synthesizing findings on delayed entry and gap years is the ambiguous distinction between these fundamental ideas. The term "delayed entry" comes from scholarship on the phenomenon of academic momentum, pioneered by Adelman (1999, 2006). Prior research has utilized the term to encompass all types of postsecondary deferment, regardless of duration, the activity students pursue during a formal break from school, or their reason for taking such a break (Attewell et al., 2012; Bozick & DeLuca, 2005; Goldrick-Rab & Han, 2011). Studies on delayed entry have shown a negative relationship between taking a break from formal education after high school and postsecondary graduation rates.

Meanwhile, the term "gap year" often refers to a subset of delayed entry based on factors such as length of delay, activity pursued during time out of school, and/or reason for deferment (Birch & Miller, 2007; Hoe, 2014; Jones, 2004; Krause et al., 2005;

Martin, 2010). This is evidenced by the fact that while 33 percent of students defer entry to college (Roksa & Velez, 2012), Baker (2013) wrote that only one percent of U.S. college students pursue a gap year.

Unfortunately, there is a lack of consensus in the literature regarding what distinguishes a gap year from other forms of delayed entry. In regards to their duration, Krause et al. (2005) and Hoe (2014) defined gap years as lasting one year and taking place between when students graduate high school and start college. Other authors, however, assert that gap years can last less than a year or longer than two years and have utilized such definitions in their research (Jones, 2004; Birch & Miller, 2007, Martin 2010).

Concerning activity pursued between high school and college, Krause et al. (2005) wrote that gap years could include experiences of any nature. Meanwhile, other scholars have suggested that a student must pursue certain kinds of activities for their time out of formal education to be considered a gap year. For example, Martin (2010) wrote that gap years consist of developmental activities, such as travel, volunteering, or leisure. Jones (2004) and Tenser (2015) suggested that gap years can also include work-related experiences. Selingo (2016) asserted that gap years can also focus on academic preparation, and The American Gap Association (2013) wrote that gap years must involve, "increasing self-awareness, learning about different cultural perspectives, and experimenting with future possible careers" (para. 3).

Hoe (2014) defined gap years using yet another criterion: students' intentionality. Specifically, she stated that gap years must be intentional breaks from formal education. Looking across these definitions, Jones (2004) put it well when he wrote, "The term 'gap

year' is widely ill-defined and ambiguous" and it does not "[represent] a tightly defined phenomenon" (p. 22). These realities lead to substantive challenges studying gap years and comparing outcomes from gap year research to those from delayed entry.

## Prior Findings on Gap Year Participation

The literature on gap years has shown that taking a formal break between high school and college leads to beneficial academic and personal outcomes for students even when adjusting for covariates. Both Birch and Miller (2007) and Martin et al. (2013) conducted studies in Australia and examined the effects of gap year participation for students attending selective institutions in Australia. By comparing the college grades of students who took a gap year to those who did not, both studies showed that students who deferred entry to college earned significantly higher marks than their peers who went directly from high school to college, even when adjusting for covariates such as socioeconomic status, academic performance in high school, gender, and disability status.

Crawford and Cribb (2012) looked at gap year participants in England using a longitudinal dataset. Their research showed that gap year participants and students who did not defer entry to college earned similar grades in college, but when covariates like prior academic performance were added to their regression models, gap year participants received better grades than their counterparts. The authors also found that gap year participation was associated with lower weekly wages for participants in the 10 years after they graduated from college. The authors suggested that this is because students who took a gap year "have fewer years after graduation during which they can reap the returns to their investment in human capital" (p. 7).

Clagett (2013) studied gap years in the context of the United States and also showed positive relationships between participating in a gap year and students' college GPAs. Clagett examined students at two highly selective institutions, namely Middlebury College and the University of North Carolina – Chapel Hill. He adjusted for covariates including prior academic achievement and standardized test scores and found that students who took gap years received significantly higher marks in college than their peers who went straight from high school to college. The applicability of Clagett's findings, however, is brought into question by the presumed lack of variation in the academic abilities of individuals in his samples, and his failure to adjust for covariates such as socioeconomic status. Walpole (2003) showed that socioeconomic status is positively linked to persistence in higher education, and therefore is an important variable to statistically adjust for in research examining postsecondary academic performance. Additionally, the generalizability of Clagett's research, as well as gap year studies conducted by Birch and Miller (2007), and Martin et al. (2013) is limited by the fact that their samples were restricted to a very small number of postsecondary institutions, and these colleges were all highly selective.

Beyond academic performance, researchers have explored the relationship between gap year participation and factors that may influence postsecondary success, such as academic motivation (Martin, 2010) and "self-authored understanding and behavior" (Tenser, 2015, p. 128). Martin (2010) explored the relationship between academic motivation and gap year participation for Australian college students and found that students with low levels of academic motivation were more likely than their peers with high motivation to take a gap year. However, after completing a gap year, students

exhibited higher levels of academic motivation than students who went directly from high school to college. This finding prompted Martin (2010) to assert, "participation in a gap year may enable possible resolution of motivational deficits between high school and university" (p. 570).

Tenser's (2015) research looked at gap year participants at "highly selective, nationally-known, private" institutions in the United States (p. 55). By analyzing qualitative data collected from interviews with gap year participants during their first year of college about their experiences during a one-year period of college deferment, Tenser (2015) found that "gap-year students are predisposed to begin college with a heightened sense of self authorship, which in turn allows them to make thoughtful and authentic choices as they transition [to college]" (p. 76). Tenser asserted that this enables students to excel in their academic work and at achieving personal goals.

Moreau (2017) also conducted a qualitative study related to gap year participation. Specifically, she analyzed open-ended survey items from the American Gap Association's National Alumni Survey. Overall, study participants perceived that gap year participation fostered their development in areas such as developing competence, emotion awareness and integration, moving through autonomy toward interdependence, developing mature interpersonal relationships, developing purpose, and developing integrity.

Wellons (2003) examined students' gap year experiences by surveying gap year participants and inquiring whether they would recommend a gap year to recent high school graduates. A large majority of gap year participants said they would recommend the experience, citing that it helps to develop individuals' maturity, confidence, and work

ethic. Participants also reported that deferring college for a year helps students experience less burnout upon arriving at college.

One study on gap years, however, showed that gap year participation was linked to lower attainment rates in college. Parker and colleagues (2015) analyzed data from a pair of longitudinal studies, one set in Finland and the other in Australia. In the Finnish study, the authors found no relationship between gap year participation and attainment. In the Australian study, however, they showed that gap year participants were significantly more likely to drop out of college than students who enrolled in college immediately after high school.

The research conducted by Parker and colleagues (2015) stands apart from other gap year research for several key reasons. The first reason is because unlike other studies on gap year participation, it showed a negative relationship between gap year participation and postsecondary success. Secondly, Parker et al. used a nationally-representative dataset rather than a sample limited to only a few institutions. Thirdly, the study used data from students attending institutions with varying levels of selectivity, while other gap year research was conducted exclusively at highly selective colleges. Lastly, the researchers utilized degree attainment as the outcome variable, rather than college GPA.

The study conducted by Parker et al. (2015) raises questions about whether the positive findings of other gap year studies were related to the samples they used, the selectivity of the institutions where they conducted their research, or the outcome variables they utilized. Reviewing the literature on delayed entry deepens these concerns and begs the question: who benefits from deferred entry?

## Prior Findings on Delayed Entry

While the literature on gap years has revealed primarily positive effects associated with college deferment, prior research on delayed entry has shown that taking a break from formal education after high school is associated with a reduction in students' chances of earning a postsecondary degree (Attewell et al., Goldrick-Rab & Han, 2011; Roksa & Velez, 2012). Many studies examining delayed entry are grounded in the theory of academic momentum (Attewell et al., 2012; Bozick & DeLuca, 2005; Goldrick-Rab & Han, 2011; Roksa & Velez, 2012), which was pioneered by Adelman (1999, 2006). He demonstrated that students' initial undergraduate course load and progress "set a trajectory that strongly influences subsequent degree completion" (Attewell et al., 2012, p. 27). Adelman also showed that early academic momentum affected students' postsecondary completion rates even when adjusting for sociodemographic variables and prior academic achievement. Lastly, he asserted that completing pre-collegiate and/or summer courses safeguarded students from losses in academic momentum.

In their research on delayed entry, Bozick and DeLuca (2005) utilized data from the National Educational Longitudinal Study of 1988 and found that 16% of students in the sample deferred entry to college by more than six months. These students tended to come from low SES backgrounds, had lower levels of performance on standardized tests, and had dropped out of school at higher rates than their counterparts. Additionally, the authors showed that when delayers enrolled in college, they attended less selective institutions than students who did not defer entry.

In regards to the impact of delaying entry on students' postsecondary success, Bozick and DeLuca (2005) found that when adjusting for several other factors, delaying

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entry to college was associated with a 64% decrease in the odds of attaining a degree.

Attewell et al. (2012) reported that students who deferred college entry were 9 percent

less likely to graduate from college than their peers who went directly from high school

to college when adjusting for relevant variables. Adelman (2006) came to similar

conclusions, indicating that immediately enrolling in postsecondary education was

associated with a 21.2% increase in the likelihood of completing a college degree. It

should be noted that Attewell and colleagues made causal estimates and did more to

address selection bias compared to Adelman.

Bozick and DeLuca (2005) took their research one step further to explore whether

students from disparate SES backgrounds and those with varying levels of prior academic

achievement were affected differently by delaying entry. Using data from the National

Education Longitudinal Study of 1988 (NELS:88), they found,

> The effect of delay was less detrimental for those in the top three SES quartiles
> than for those in the lowest SES quartile. Students with low test scores who
> delayed enrollment had a lower probability of degree completion than students
> with higher test scores who also delayed enrollment. (p. 551)

These findings demonstrate that while delayed entry decreased the likelihood of

attainment for all college students, college deferment had an even larger detrimental

impact on those facing more substantial socioeconomic and academic challenges.

There is one study, however, that links delayed college entry with some positive

postsecondary academic outcomes. Using the Beyond Postsecondary Students

Longitudinal Survey (BPS), Hoe (2014) found that delay was associated with higher

cumulative GPAs. On the other hand, she also determined that delaying entry to college

significantly decreased the likelihood of students attaining a postsecondary degree.

When interpreting these results, one should consider that unlike other data sets used in studies on delayed entry, BPS only tracked students from the time they entered college. Thus, the sample included individuals who did not enroll in higher education for many years after finishing high school. In the other studies on delayed entry and gap years discussed in this dissertation, students were tracked for a limited period of time following their expected high school graduation date. Anyone who enrolled in college outside of this time period would have been excluded from the sample. This methodological distinction of Hoe's work makes her findings somewhat less relevant in the context of the present study, since the sample frame of this dissertation excludes individuals who deferred college entry for more than four years. This difference in sampling also makes her work less relevant as a comparison group to prior research on gap years, which have generally looked at students who took only a one-year break between high school and college.

It should be noted that Hoe's research also stands out from other literature on deferred entry because it utilized both college GPA and attainment of a college degree as outcome variables. Meanwhile, most other studies on gap years looked exclusively at students' college grades, and research on delayed entry considered the effects of deferment on completion. By examining both outcome variables, Hoe took an important step toward bridging the disconnect between these two bodies of literature. The present study emulates Hoe's work by looking at relationships between college deferment and students' GPAs and attainment rates. However, it utilizes a sample that is more consistent with prior research by excluding students who deferred entry for more than a few years.

This attribute of the dissertation situates the research well among existing literature on gap years and delayed entry.

## Exploring the Disconnect Between Findings on Gap Years and Delayed Entry

Summarizing the studies discussed above, it appears that participating in gap years is associated with students receiving higher grades in college, while delaying entry to college is linked to a decreased likelihood of obtaining a postsecondary credential. These conclusions, however, are contradictory since gap years and delayed entry are more or less identical phenomena. In this section, I examine the methods, samples, and settings of research on gap years and delayed entry to ascertain what factors may have contributed to these conflicting results. Additionally, I explain how the present study overcomes some of the challenges that have impeded the ability of prior research to generate appropriately nuanced findings.

### Samples and Methods of Prior Studies

By and large, contrasting samples and methodological approaches have been used to examine the phenomena of delayed entry and gap years. Specifically, studies focusing on delayed entry to college have utilized US-based, nationally representative datasets. These include the National Education Longitudinal Study of 1988 (NELS:88) (Adelman, 1999, 2006; Attewell et al., 2012), the National Longitudinal Survey of Youth (NLSY97) (Roksa & Velez, 2012), the Educational Longitudinal Study of 2002 (ELS:2002) (Wells & Lynch, 2012), and the Beyond Postsecondary Students Longitudinal Survey (BPS) (Hoe, 2014).

This is an important way in which research on delayed entry differs from studies on gap years, which have generally limited their samples to students who attended

highly-selective colleges and universities (Birch & Miller, 2007; Clagett, 2013; Martin et al., 2013; Tenser, 2015). This is a shortcoming of existing gap year studies that has limited their ability to address the effects of gap year participation for students from a broad range of backgrounds. The present study addresses this shortcoming by using data from a nationally-representative study (ELS:2002), while simultaneously examining whether there are different relationships between college deferment and postsecondary success for students who attend colleges of varying levels of selectivity.

## Demographics of Deferment

A review of the literature on delayed entry and gap years reveals that despite the overlap in the operationalization of these terms, there are important differences in the attributes of students examined in each area of research. In general, studies on delayed entry have shown that students who defer college are substantially more disadvantaged than their peers along a multitude of measures (Goldrick-Rab & Han, 2011; Roksa & Velez, 2012). On the other hand, gap year studies have demonstrated positive relationships between college deferment, income, and test scores (Hoe, 2014).

The studies that have focused on delayed entry in the context of the United States have shown that American students who defer entry to college come from disadvantaged backgrounds. For example, Goldrick-Rab and Han (2011) showed that delayers are six times more likely than their peers to come from the lowest quintile of the socioeconomic distribution. They also found that students from lower socioeconomic backgrounds typically had longer periods of delay than higher SES students. Roksa and Velez (2012) showed that students whose parents had no postsecondary education were twice as likely to postpone entry compared to students whose parents had a college degree. Delayers

were also more likely to be male, as well as Black or Hispanic (Attewell et al., 2012; Goldrick-Rab & Han, 2011).

Students who delayed were also significantly more likely to work more than 35 hours a week, be married, and/or have children at the time they enrolled in college (Goldrick-Rab & Han, 2011; Roksa & Velez, 2012). Delayers also had lower high school grades, lower levels of self-esteem, parental involvement, and peer encouragement than students who enrolled in college immediately after high school. They were also more likely to have attended public high schools and completed fewer advanced math and science courses (Attewell et al., 2012; Goldrick-Rab & Han, 2011; Rowan-Kenyon, 2007). Looking across these differences, it is clear that U.S. students who delay entry to college tend to be underprivileged relative to those students who enroll immediately in postsecondary education. As Attewell et al. (2012) put it, "students who delay [were] disadvantaged on virtually every covariate we [tested]" (p. 38).

Meanwhile, empirical studies on gap year students set in the United States have demonstrated that individuals who partake in a gap year come from historically privileged backgrounds. Using the BPS dataset, Hoe (2014) distinguished gap year participants from other delayers based on their reasons for college deferment and length of deferment. Specifically, she labeled individuals who deferred for one year and for one of the following six reasons as having taken a gap year: travel, travel and work, travel and other, travel and work and other, work, or work and other. Hoe (2014) found that, relative to other delayers, gap year participants "tended to be male, [W]hite… from higher income groups… and have scored above the median on their admissions test" (p. 47). Additionally, when Tenser (2015) conducted a study of 12 gap year participants who

went on to attend prestigious U.S. colleges, most of them pursued travel during their deferment and none reported deferring postsecondary education to earn adequate financial resources in order to afford a college education.

Comparing findings of studies on delayed entry with those on gap years, it appears that while students who defer entry to college are generally disadvantaged relative to students who immediately enroll in postsecondary education, there exists a subset of students who defer entry to college who are more academically prepared and have access to more resources, and these students have tended to be the focus of US-based research on gap years.

There is potential, however, for the demographic characteristics of students who defer entry to college to shift in the coming years due to the COVID-19 pandemic. Looking at the number of first-time, first-year students at U.S. colleges, there was a 13% decrease from fall 2019 to fall 2020 (Othot, 2020). This was likely due to many high school graduates choosing to postpone beginning college rather than start their postsecondary careers during the height of the COVID-19 pandemic. One can assume that many of these individuals will choose to go to college in the coming years and when they do, campuses will be dealing with an influx of students who deferred entry. It is plausible that the attributes of these students will be different from others who deferred entry prior to the pandemic.

### National Contexts

Another plausible explanation for the incompatible results contained in the aforementioned research is that a number of the studies on gap years were set in Australia, while all of the studies on delayed entry used datasets from the United States.

Existing literature shows that there are many critical differences between these two nations in terms of the proportion of students who defer entry. Specifically, in the United States, approximately one percent of high school graduates participate in gap years, while 33 percent of students in the United States delay entry to college (Baker, 2013; Roksa & Velez, 2012). On the other hand, in Australia, 22 percent of students take gap years (Lumsden & Stanwick, 2012) and the aforementioned research from Australia assumed that anyone who took a break between high school and college pursued a gap year. The fact that research out of Australia did not distinguish between students who take gap years and other delayers points to there being different cultural contexts in the United States and Australia regarding college deferment.

Not only are there important differences in the proportions of students in the United States and Australia who defer entry to college, but there are also striking contrasts in the characteristics of such students. Lamb (2001) looked at a nationally-representative sample of students in Australia and found a positive relationship between deferring entry to college and socioeconomic status. Meanwhile Goldrick-Rab and Han (2011) found that students in the United States who delay entry to college were "nearly six times more likely to come from families in the bottom 20% of the socioeconomic distribution, as compared to those in the top 20%" (p. 424). The contrast between Lamb's findings and those of Goldrick-Rab and Han shows that studies on gap years in Australia and delayed entry in the United States examine students who differ drastically in terms of their socioeconomic status. This likely contributes to the discrepancy of findings from the two bodies of research.

**Activity During Deferment and Life Course Transitions**

Prior research signals that another key difference between studies on gap year participation and delayed entry is the activities students pursue during their time outside of formal education. Roksa and Velez (2012) examined the relationships between life course transitions (i.e., work, marriage/cohabitation, parenthood), delayed entry, and attainment of a postsecondary degree. They found that students who delayed entry to college had different responsibilities than other students at the time they enrolled in higher education. Specifically, a third of students who delayed entry to college worked more than 35 hours a week at the time they started their college careers, while only 11 percent of students who went straight from high school to college worked this much. Additionally, 17 percent of students who delayed entry had children at the time they enrolled in college. This value was two percent for students who did not take time away from formal education.

Meanwhile, some prior research on gap years has examined students who engaged in starkly different activities during their time out of formal education. Specifically, Tenser's (2015) research captured data on the activities of 12 gap year participants. All of these individuals traveled abroad, participated in internships, and/or engaged in outdoor adventure programs. None were married/cohabiting or had children when they enrolled in college.

To investigate whether there is a relationship between the activities pursued by students during college deferment and postsecondary degree attainment, I reviewed the variables in ELS:2002 for any that would indicate how students who deferred entry to college spent their time between high school and college. The variable that came closest

to this construct was one asking participants who deferred entry to give their primary reason for postponing their college educations after high school. Unfortunately, there were no variables capturing detailed information on how students spent their time during their deferment period.

Nevertheless, the item on students' primary reason for deferment contained choices that mapped well onto commonly pursued activities in the literature on gap years and delayed entry, such as travel, work, serving in the military, earning money so they could attend college, improving their academic qualifications, and supporting their family. I conducted a logistic regression which revealed that students who picked any of the above choices for their primary reason for deferral graduated from college at lower rates than students who did not defer entry. Since there was no meaningful variation between the activities students pursued during deferment and their attainment rates, I did not statistically adjust for this variable in the present study.

### Institutional Selectivity

One of the most apparent differences between existing studies on delayed entry and gap years is the postsecondary institutions that have been included in their samples. Specifically, gap year research has generally been limited to highly selective institutions (Birch & Miller, 2007; Clagett, 2013; Martin et al., 2013; Tenser, 2015), while research on delayed entry has looked at a much broader swath of colleges in nationally-representative samples (Attewell et al., 2012; Bozick & DeLuca, 2005; Roksa & Velez, 2012). It is feasible that institutional selectivity has contributed to the contrasting findings from these fields and this study explores whether institutional selectivity moderates the relationship between deferment and postsecondary success.

## Existing Literature on Institutional Selectivity

Prior research has examined institutional selectivity in various ways. Baker, Klasik, and Reardon (2018) looked at trends in student enrollment at colleges of varying levels of selectivity by race/ethnicity. They determined the selectivity of four-year institutions using Barron's ratings and found that White students attended highly selective institutions at higher rates than their Black and Hispanic peers. Looking at the proportion of students attending any college, however, the authors showed that the gaps between Hispanic and White, and Black and White students shrank substantially from 1984 to 2014 due to the increasing number of Black and Hispanic students who enrolled in non-degree granting postsecondary programs rather than opting not to enroll in college at all.

Other studies have examined whether there is a correlation between the selectivity of colleges and their utilization of best practices in undergraduate education. Kuh and Pascarella (2004) used Barron's to determine the selectivity of colleges, and found that selectivity is very closely related to the scores that students receive on standardized tests, such as the SAT and ACT. They found little correlation, however, between institutional selectivity and educational best practices such as student-faculty contact, cooperation among students, active learning, prompt feedback, and quality of teaching. In a separate, similar study, Pascarella et al. (2006) found that "attending a selective institution in no way guarantees that one will encounter educationally purposeful academic and out-of-class experiences that are linked to a developmentally influential undergraduate experience" (p. 279).

In another study on institutional selectivity, Gansemer-Topf and Schuh (2006) examined whether there was a relationship between institutional selectivity and institutional expenditures on interventions intended to foster student retention and graduation. They also utilized Barron's ratings and found that institutional selectivity and expenditures accounted for more than 60% of the variance in student retention and graduation rates, and expenditures were positively correlated with retention and graduation rates at both high selectivity institutions and low selectivity institutions. There were exceptions, however, as academic support expenditures at low selectivity institutions did not affect retention rates. The authors hypothesized that this may be due to less selective institutions having fewer financial resources and more at-risk students who have more substantial academic needs (Hoxby, 2009).

Researchers have also looked at the relationship between the selectivity of the colleges in which students enroll and their success after college. Dale and Krueger (2011) found that when not adjusting for SAT scores, there was a positive relationship between selectivity and earnings. When standardized test scores were statistically adjusted, however, attending a highly selective college was not linked to higher earnings. There was an exception though, as Black and Hispanic students who attended more selective institutions earned more than their counterparts, even when adjusting for standardized test scores.

Elliott (2016) looked at the relationships between self-efficacy and retention at college using institutional selectivity as a moderator. The author found that academic and social self-efficacy were both positively related with persisting to the second year of college. Additionally, Elliott showed that institutional selectivity served as a moderator

on the relationship between self-efficacy and persistence. Specifically, her findings revealed that social self-efficacy had the greatest impact on student persistence at less selective colleges, while academic self-efficacy was associated with persistence at highly selective colleges.

Reviewing the literature on institutional selectivity and contextualizing it with prior studies on college deferment reveals that students who defer entry tend to enroll in less selective colleges (Bozick & DeLuca, 2005), and students at such institutions have lower retention and graduation rates (Gansemer-Topf and Schuh, 2006). One aim of this study is to adjust for this fact and produce a clearer picture of the relationships between deferment and postsecondary success for students at colleges with varying levels of selectivity. Additionally, Elliott (2016) showed that relationships between student attributes and postsecondary success can vary by institutional selectivity, which lends credit to the notion that institutional selectivity may moderate the relationship between deferment and academic performance in college.

## Institutional Selectivity in the Present Study

While existing literature has examined the relationships between college selectivity and variables such as institutions' utilization of educational best practices and student earnings, prior research has not examined the relationships between deferment and the institutional selectivity of the colleges students attend. In the following paragraphs, I discuss several indications that students who defer entry to college experience contrasting postsecondary outcomes based on the selectivity of the postsecondary institutions they attend. A key objective of this study is to test whether this is the case.

Firstly, prior research on delayed entry has utilized nationally-representative samples of students at two- and four-year colleges and shown that students who deferred entry to college were less likely than their peers to earn a degree (Attewell et al., 2012; Roksa & Velez, 2012). The validity of this finding can be questioned, however, because Bozick and DeLuca (2005) found that students who deferred entry to college tended to enroll in less selective institutions, and Gansemer-Topf and Schuh (2006) demonstrated that students who attended less competitive colleges were less likely to earn a degree. In fact, graduation rates are almost twice as high at very selective institutions compared to minimally selective or open institutions. Therefore, the relatively low graduation rates of students who defer entry to college may be related to the selectivity of the institutions they attend rather than the fact that they did not immediately pursue postsecondary education.

Additionally, several existing gap year studies set at highly selective institutions in Australia linked college deferment to higher college GPAs (Birch & Miller, 2007; Martin et al., 2013). Parker et al. (2015), however, looked at a nationally-representative sample of Australian college students and found that there was a negative relationship between taking a gap year and attaining a college degree. These findings highlight the possibility that students who defer entry to college have different levels of postsecondary success depending on the selectivity of college they attend.

Another indicator of the role of institutional selectivity emerged when I conducted a pilot study of ELS:2002 data to explore relationships between students' primary reason for deferring entry to college and attainment. Using logistic regression, I showed that whether students' primary reason for college deferment was to travel, work, serve in the

military, earn money so they could attend college, improve their academic qualifications, or support their family, students who deferred entry were less likely to earn a degree within six years of enrolling in college compared to their peers who went directly to college, even when adjusting for socioeconomic status, academic performance in high school, race/ethnicity, and gender.

There was, however, one deferment reason that was not related to lower attainment rates: students deferring because they were not admitted to a college they wanted to attend. This included both students who were not admitted to any college and those who were admitted to a college but decided to defer and apply again at a later date in hopes of being accepted to another institution. Presumably, students in either of these situations applied to highly selective institutions rather than those accepting the vast majority of applicants. Not only was there not a negative relationship between college deferment and attainment for these students, but descriptive statistics showed that these individuals attained postsecondary degrees at higher rates than other students in the sample who enrolled immediately in college. These findings show that students who deferred enrollment to college for admissions-related reasons, unlike other individuals who deferred entry, were not less likely to earn a postsecondary credential within six years compared to students who went straight from high school to college.

When considering the contradictory findings from the literature on gap years and delayed entry, as well as the findings of my pilot study, it becomes plausible that the institutional selectivity of the colleges students attend after deferring entry to college plays an important role in shaping their success, and that students who defer entry may have differing postsecondary outcomes based, in part, on the selectivity of the institutions

they attend. The present study examines this notion by testing whether there are relationships between college deferment and postsecondary success (i.e., attainment and college GPA) while statistically adjusting for institutional selectivity. Additionally, I conduct linear and logistic regression models using institutional selectivity as a moderator to see whether there are different relationships between college deferment and postsecondary success for students who attend institutions of varying levels of selectivity.

## Conceptual Framework

### Ecological Systems Theory

The conceptual framework for this dissertation is Arnold and colleagues' (2012) adaptation of Bronfenbrenner's ecological systems theory (1992). Bronfenbrenner developed his theory on the topic of child development, asserting that children's growth is influenced by a multitude of factors that exist in concentric layers around an individual child, with more central layers having more direct influence on children. Starting from the center, Bronfenbrenner named the layers the microsystem, mesosystem, exosystem, and macrosystem. Underlying these layers of the model is the chronosystem, which reflects the role of the timing of life course events. Bronfenbrenner's ecological systems theory has been applied to explain a broad range of social phenomena including health education (Cala & Soriano, 2014), families and incarceration (Arditti, 2005), and workplace well-being (Bone, 2015).

Arnold et al. (2012) applied Bronfenbrenner's ecological systems theory to college readiness (Figure 1). At the center of their model, Arnold and colleagues placed the student and their personal attributes like socioeconomic status, gender, race, and academic preparation. Around the student is the microsystem, which consists of their

immediate social and physical environment (e.g., family, school, peers). Continuing outward, the mesosystem is the next layer. It reflects "connections across microsystems" (p. 14) and depicts the totality of students' experiences across all microsystems. Arnold et al. considered high schools and colleges to be part of the mesosystem, as they are environments where teachers, peers, school, and work intersect with one another.
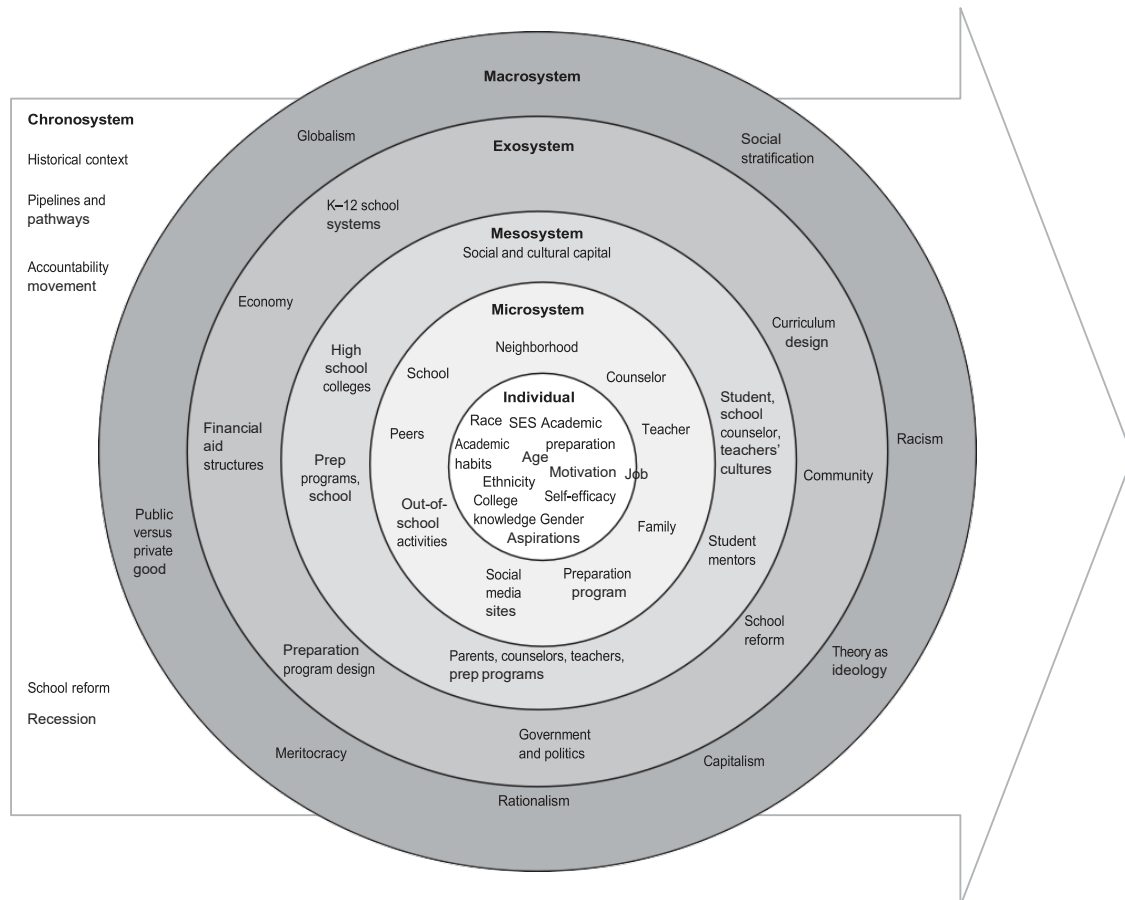


**Figure 1. Arnold and Colleagues' Ecological Model of College Readiness (2012, p. 92)**

Subsequently, the exosystem surrounds the mesosystem. It represents a level of the environment in which students are seldom present but where events occur that influence their immediate settings. Entities in the exosystem include the economy, curricula, and school reform. The macrosystem is the outermost layer that reflects the

culture, laws, and values that shape all of the inner layers of the model. Lastly, the chronosystem lies beneath all other layers of the model and represents the role that timing of different experiences plays on a student's readiness for college. The interplay between postsecondary success and whether students enroll in college immediately after high school or after deferring entry is a perfect example of how the chronosystem can shape students' college readiness and success.

Although Arnold et al. (2012) built their model around the concept of college readiness rather than postsecondary academic success (the outcome of interest in this dissertation), they observed a close relationship between the constructs. For example, they defined college readiness as "the academic and practical knowledge [students] need to succeed in college" (p. 91). Furthermore, there is an obvious connection between college readiness and success, since the more prepared someone is for college, the higher their grades are likely to be and the more likely it is that they will graduate on time. Due to this clear alignment between college readiness and the outcome variables of this study, I adapted Arnold's model and applied it in this dissertation.

**Applying Ecological Systems Theory to the Present Study**

Ecological systems theory and the particular framework proposed by Arnold et al. (2012) can be used to strengthen the theoretical underpinnings of this dissertation. Prior research on delayed entry and gap years has adjusted for individual student characteristics (e.g., SES, race, gender). Roksa and Velez (2012) went one step further by examining life course transitions that students experienced and whether these events took place before or after students enrolled in college. These events, which include working, getting married,

and having children, involve both the microsystem and chronosystem as described by Arnold and colleagues.

Existing literature on delayed entry and gap years, however, has not addressed the role that the mesosystem plays in influencing students' success in college. "A mesosystem approach concentrates on the interaction of messages, experiences, and relationships across the settings and roles that students inhabit," wrote Arnold et al. (2012, p. 96). Furthermore, they asserted that "the mesosystem is a crucial layer of the environment for college readiness because the totality of students' experiences determines their educational dispositions and behaviors" (pp. 14-15). Arnold et al. asserted that students' college experience is a critical part of their mesosystem. In this way, the postsecondary institutions that students attend can play a key role in shaping their academic success in college.

Another key aspect of ecological systems theory is that it focuses on the interplay of factors that shape people's lives. Arnold et al. (2012) wrote,

> By centering on interactions, as opposed to isolating selected aspects of students and environments, the theory provides a way of understanding contextual influences on the educational trajectories of different demographic groups while also explaining how individual agency operates to differentiate outcomes within groups. (p. 93)

According to Arnold et al. (2012), a particular mesosystem becomes more influential in students' lives when students experience "a high degree of overlap and congruence across many facets of [their] lives" while they are engaged in that mesosystem (p. 15). Arnold and colleagues went one step further when they posited, "the

lack of success in college readiness might result from inconsistent and contradictory membership and messages in a student's everyday arenas" (p. 15). Given findings from Martin (2010) and Tenser (2015) that students who defer entry exhibit heightened levels of academic motivation and "self-authored understanding and behavior," it is feasible that highly selective colleges provide students who have these attributes and perspectives with more congruent experiences than less selective colleges. Along with prior research by Elliott (2016), which showed how institutional selectivity moderates the relationships between self-efficacy and persistence, ecological systems theory and research conducted by Arnold et al. directly support the idea that students who defer entry to college and attend highly selective colleges may have different academic outcomes than students who defer and attend less selective colleges.

### Analytic Framework

A central objective of this dissertation is to connect the bodies of knowledge on gap years and delayed entry by including outcome variables and drawing on methodological strengths from both areas, while exploring possible explanations for why they have shown conflicting findings. Two limitations of gap year studies are that their samples have been limited to highly selective institutions and they have failed to adjust for relevant covariates. The present study utilizes a large, nationally-representative dataset and adjusts for variables that have been shown to affect student outcomes (e.g., socioeconomic status and prior academic achievement).

Meanwhile, a limitation of research on delayed entry is that it has failed to examine whether students who defer entry and attend institutions of varying levels of selectivity have disparate postsecondary outcomes. This is implied by the fact that gap

year research conducted at highly selective schools shows a positive relationship between college deferment and college GPA, while studies using nationally-representative samples indicate that students do worse when they postpone enrolling in college. The present study examines whether students who defer entry to college experience different postsecondary academic outcomes based on the selectivity of the college they attend. Lastly, I link prior research on gap years and delayed entry by utilizing dependent variables from both areas of knowledge (i.e., college GPA and attainment of a postsecondary degree).

The analytic framework below (Figure 2) shows how the present study is framed by prior research on gap years and delayed entry. It also presents the analytic model that is utilized in this dissertation. Specifically, in this study, I explore the relationship between college deferment and the outcome variables of college GPA and attainment of a bachelor's degree. I focus on the extent to which this relationship varies by the institutional selectivity of the colleges students attend, thus incorporating ecological systems theory and the notion that mesosystems can influence students' success in college. Additionally, I statistically adjust for SES and academic achievement, which have been shown to affect the outcome variables of college GPA and attainment for students who defer entry to college.
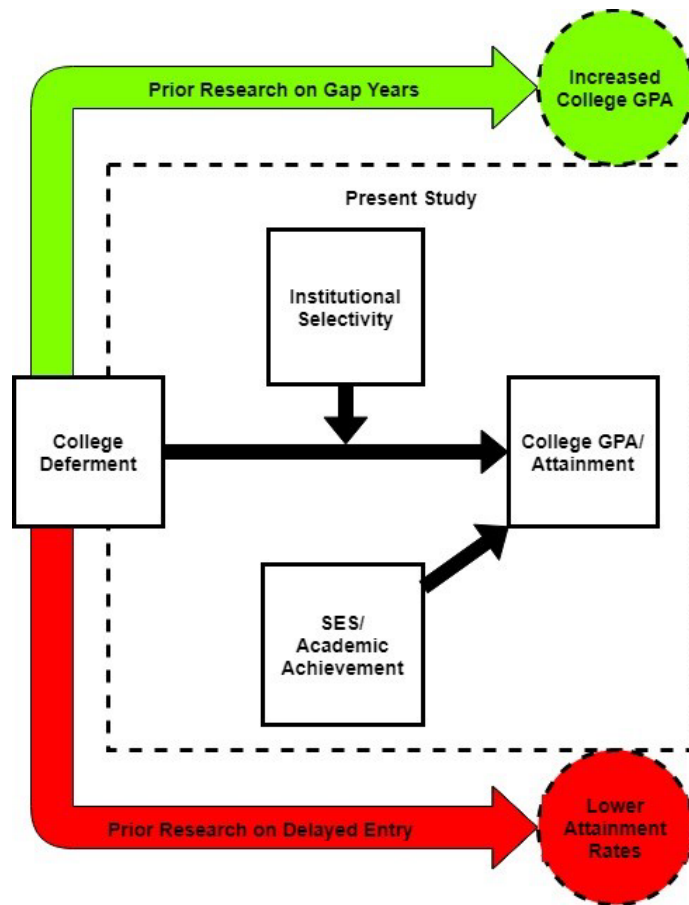
**Figure 2. Analytic Framework**

## Summary

Existing research on delayed entry makes it clear that when looking at a nationally-representative sample of U.S. students, deferred entry reduces students' chances of earning a postsecondary degree. Gap year research, however, indicates that there are some students, particularly those who attend highly selective colleges and universities, who perform better in college following a period of college deferment. The present study bridges the divide between these bodies of literature, addresses methodological shortcomings of prior studies, and fills a critical void in the knowledge base by helping to determine whether institutional selectivity moderates the relationship

between college deferment and postsecondary success. Regardless of whether it does or

not, findings shed light on which students, if any, perform better in college after deferring

postsecondary enrollment.

# CHAPTER 3 – DESIGN AND METHODS

## Overview

The present study utilized a quantitative design to address the following research

questions:

1. How do students who defer entry compare with their peers who enroll

    immediately in college in terms of their demographics, their postsecondary

    success, and the selectivity of the four-year colleges they attend?

2. To what extent does deferred entry have disparate associations with college GPA

    and degree completion for students who attend four-year postsecondary

    institutions with varying levels of selectivity?

Quantitative methods enable the exploration of relationships between the variables of

interest, while adjusting for factors that could influence these correlations (Creswell,

2009). Logistic regression was used to examine the relationships between independent

variables and the binary dependent variables (i.e., attainment of a college degree), while

OLS regression was used in models with a continuous outcome variable (i.e., college

GPA).

## Educational Longitudinal Study of 2002

The study used data from the Education Longitudinal Study of 2002 (ELS:2002)

from the National Center for Education Statistics (NCES). ELS:2002 was a nationally

representative study consisting of four waves of data collection. The goal of ELS:2002

was to,

> serve the development and evaluation of educational policy at all governmental
>
> levels and inform decision makers, educational practitioners, and parents about

the changes in the operation of the educational system over time, and the effects

over time that elements of the system have on the lives of the individuals who

pass through it. (NCES, n.d.)

The study commenced in 2002 and tracked students for 10 years beginning in their

sophomore year of high school. Participants were asked to complete a baseline

instrument, as well as a follow-up instrument in each of the following years: 2004, 2006,

and 2012. The initial sample included sophomores at public, charter, Catholic, and other

private schools in the United States that contained 10th grades.

The sample frame of schools was generated to match a nationally-representative

target population. A total of 750 schools were selected to participate in the study and

subsequently, a nationally representative sample of tenth-grade students was chosen

within sample schools. A baseline questionnaire, that included cognitive tests in reading

and mathematics, was completed in the spring term of 2002 by 15,360 high school

sophomores at sample schools. Additionally, questionnaires were administered to

respondents' parents, math and English teachers, school principals, and heads of school

libraries.

The first of three follow-up surveys was administered in spring 2004 when most

respondents were in their senior year of high school. This is the sample that I generalized

to in this study. Questionnaires were also given to students who had transferred to other

schools, dropped out of school, or graduated high school early. The sample was

"freshened" in 2004, meaning that 2004 seniors who were not sophomores in 2002 were

given a chance of selecting into the survey in order to ensure that the survey was

representative of all the nation's 2004 high school seniors. In the fall of 2004, high school

transcripts were also requested for all sample members who completed at least one of the first two interviews.

The second follow-up survey was administered in 2006, two years after respondents' anticipated high school graduation, to all individuals who completed the baseline and/or first follow-up survey. The survey was administered through web-based questionnaires, computer-assisted telephone interviews, and computer-assisted personal interviews.

The final follow-up survey was administered in 2012, eight years after students' anticipated high school graduation. This instrument captured data on participants' college enrollment, grades, and graduation, as well as their employment history, marital status, and family situations. Special efforts were made to locate study participants, including conducting batch searches of national databases for contact information, computer-assisted telephone interview locating, computer-assisted personal interview field tracing, and intensive tracing. Respondents completed the 2012 survey through online interviews, telephone interviews, or field interviews.

The longitudinal nature of ELS:2002 lent itself well to the purpose of the present study, as it provided the researcher with data regarding respondents' demographic characteristics, academic performance in high school, socioeconomic status, postsecondary institutions attended, college GPA, and whether or not they attained a college degree. Additionally, data were collected for eight years after students' anticipated high school graduation date, meaning that students could graduate from high school on time (in 2004) defer entry to college for up to four years, and still potentially

attain a postsecondary degree from a four-year institution before the final wave of data collection in 2012.

## Study Sample

The sample for this study was generated from the third follow-up postsecondary student-institution attendance file from ELS:2002. This was a student-level file that linked all students in ELS to the postsecondary institutions they attended as of the third follow-up interview. There were 20,950[1] students in this file. Of these students, 4,190 never attended a four-year college according to ELS, and an additional 6,460 students either had no postsecondary institution listed or attended an institution that was not in the Barron's dataset. These individuals were removed from the sample.

Next, individuals were removed from the sample if they did not begin their postsecondary education prior to October 2008. Students who began their postsecondary education after this date would have had less than four years to earn a bachelor's degree before the final wave of data collection in 2012 and therefore they were excluded from the sample. Lastly, I removed students who attended colleges designated by Barron's as specialty schools because these institutions have varying rates of selectivity. Altogether, this generated an analytic sample consisting of 9,250 participants.

## Variables in the Study

I operationalized college deferment using the ELS:2002 variable for deferred entry into higher education. ELS:2002 defined deferment as not beginning postsecondary education by October of the year in which students completed their high school

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[1] All sample sizes are rounded to the nearest 10 in accordance with the NCES license agreement.

education, if they graduated between January and July. For students who graduated high school between August and December, ELS:2002 considered them to have deferred entry if they did not begin their postsecondary careers by February of the following calendar year (same academic year).

Institutional selectivity was determined using Barron's College Admissions Selector Ratings from 2004. Barron's is an ordinal variable assigned based on the selectivity of the first four-year college that students attend. Barron's provides selectivity ratings for colleges and universities on an annual basis, and the 2004 ratings were selected for the present study because 2004 is the year ELS participants were projected to graduate from high school. To determine their ratings, Barron's examines the SAT scores, high school GPAs, and class rank of enrolled students, as well as institutions' acceptance rates (Barron's College Division, 2018). Barron's has seven levels of selectivity, with level 1 being the most selective and level 6 being the least (Table 1). The seventh level is for specialty schools and was not used in this study as it was not correlated to a particular level of selectivity. Students who attended specialty schools were excluded from the sample.

**Table 1. Barron's Selectivity Ratings**

| Level | Description | Typically admitted | Admit rate | Number of Schools | Example Schools |
|---|---|---|---|---|---|
| 1 | Most competitive | Students in the top 10% to 20% of their class | <33% | 82 | Middlebury College, UNC at Chapel Hill, University of Florida, Vanderbilt University |
| 2 | Highly competitive | Students in the top 20% to 35% of their class | 33% to 50% | 109 | Clemson University, Gettysburg College, Gonzaga University, Providence College |
| 3 | Very competitive | Students in the top 35% to 50% of their class | 50% to 75% | 277 | Hofstra University, Iona College, Texas |

| | | | | | Tech University, University of Dayton |
|---|---|---|---|---|---|
| 4 | Competitive | Students in the top 50% to 65% of their class | 75% to 85% | 671 | Ball State University, Canisius College, Mississippi State University, San Jose State University |
| 5 | Less competitive | Students in the top 65% of their class | >85% | 198 | California State University – Bakersfield, Plymouth State University, Tennessee State University |
| 6 | Non-competitive | Any student who graduated high school | >98% | 93 | University of Nebraska at Kearney, University of Texas at San Antonio, Wilmington College |
| 7 | Special | Colleges with specialized programs of study. Admission not usually based on academic criteria. | Varies | 85 | Massachusetts College of Art, Metropolitan State University, Naropa University, Thomas Edison State College |

For the present study, I converted Barron's rating from an ordinal variable into a binary variable. Specifically, I compared the postsecondary success of students who attended colleges that Barron rates as "most competitive" (level 1) or "highly competitive" (level 2) to students at less selective colleges (levels 3-6). This enabled me to compare students who attend the most selective institutions to those who initially enrolled at less selective four-year colleges.

It should be noted that some existing gap year studies conducted in the United States have looked at students who attended colleges with a Barron's rating of 1 (e.g., Middlebury College, UNC at Chapel Hill (Clagett, 2013)). Tenser did not identify the institutions where she conducted her gap year research, but wrote that they were "all

highly-selective, nationally-known, private institutions" (p. 55). I may have better aligned this dissertation with existing gap year literature if I had operationalized highly selective colleges as only those with a Barron's rating of 1, but due to the limited number of students in ELS:2002 who deferred entry to college and went on to enroll in a college with a Barron's rating of 1, it would not have been feasible to only compare these individuals to all others. Therefore, I include Barron's levels 1 and 2 in the category of highly selective institutions in the present study.

The dependent variable of attainment of a postsecondary degree was operationalized as whether students earned a bachelor's degree within four years of starting their postsecondary education (attainment = 1; non-attainment = 0). To clarify, whether students deferred entry or not, they were determined to have attained a degree if they graduated within four years of their initial postsecondary enrollment. This strategy provided all students in the sample with the same time period to attain a degree whether they deferred entry or not. Due to the timeframe of the ELS:2002 student, if a student deferred entry and did not enroll in college before October 2008, they were excluded from the sample since they would not have had four years to attain a degree before the last wave of data collection. The other dependent variable, college GPA, was taken from ELS using records of students' grade point average across all of the postsecondary institutions they attended.

## Covariates

In this dissertation, I statistically adjusted for socioeconomic status and prior academic performance. Respondents' SES was measured using a composite variable provided in the ELS:2002 data set. This variable was determined using data from the

administration of the ELS base year instrument. Specifically, SES was based on five equally weighted, standardized components: mother's education, father's education, family income, father's occupation, and mother's occupation. Students' prior academic performance was operationalized as their composite math/reading score on the standardized test administered to participants in the base year of ELS:2002. Both SES and prior academic performance were covariates measured on continuous scales.

Additional covariates included respondents' sex (collected by NCES as a binary measure) and race/ethnicity. I converted both of these variables into dummy variables and used White as the reference group for race/ethnicity. An alternative approach for race/ethnicity would have been effect coding since White is not necessarily the group to which other races must be compared (Alkhaursi, 2012; Mayhew & Simonoff, 2015). Prior studies in the field of deferred entry, however, have used dummy variable coding to address race/ethnicity, and this approach is ubiquitous and straightforward (Attewell et al., 2012; Martin, 2010; Institute for Digital Research and Education, n.d.).

Prior research conducted by Roksa and Velez (2012) showed that undergoing life course transitions (i.e., entering into marriage, having a child, working more than 35 hours per week) prior to starting college or while pursuing postsecondary education was associated with a reduced likelihood of attaining a bachelor's degree. Roksa and Velez also showed that students who deferred entry to college experienced such transitions at higher rates than their counterparts who started postsecondary education immediately after high school. I did not, however, adjust for the aforementioned life course transitions because they may occur after students make the decision to defer entry to college. For example, a student may defer to work full time prior to college enrollment. If I had

adjusted for life course transitions that may have occurred after the deferment occurred, I would have blocked some of the relationship between deferment and the dependent variables. Therefore, life course transitions were not included in any analytic models, although future research should examine the interplay between deferment, institutional selectivity, life course transitions, and outcomes variables related to postsecondary success.

## Multiple Linear and Logistic Regression

I examined two dependent variables in analyses: college GPA and attainment of a four-year degree. I utilized multiple linear regression to look at relationships between independent variables and college GPA since it is a continuous variable. I used logistic regression when examining the relationships between independent variables and the dependent variable of attainment, due to its binary nature.

## Multiple Linear Regression

Multiple linear regression was used to explore relationships between independent variables and the outcome variable of college GPA. According to Treiman (2009), multiple linear regression is the appropriate analytic approach when attempting to quantify the relationship between multiple independent variables and a dependent variable that is measured on a continuous scale.

Multiple linear regression operates with several important assumptions (Fox, 1997). First, the errors between observed and predicted values must be normally distributed, which I checked by examining a predicted probability plot to make sure the residuals of the regression followed a normal distribution. Second, there must be no multicollinearity in the data. To check for multicollinearity, I examined the variance

inflation factors to ensure that they were all below 4, thus indicating that multicollinearity is not problematic (Penn State Eberly College of Science, n.d.a).

The third assumption is homoscedasticity, which means the variance around the regression line is the same for all values of a predictor variable. I ensured this by producing and examining a scatter plot of the predicted values and residuals. The final assumption is that there must be a linear relationship between the outcome variables and dependent variables, which can be verified by completing the above steps. Multiple linear regression is also sensitive to outliers and should not be used to predict the outcome variable using a value for the independent variable that is well outside the range that was used to generate the model. I examined residual plots and evaluated Cook's distance to identify outliers. I looked for data points with Cook's distance values greater than 0.5 that could meaningfully influence my results (Penn State Eberly College of Science, n.d.b). The maximum value for Cook's distance in the dataset, however, was less than 0.01.

## Logistic Regression

Logistic regression was utilized to address the components of the study involving the dependent variable of attainment of a college degree, since it is dichotomous in nature. According to Hosmer and Lemeshow (1989), logistic regression is "the standard method of analysis in this situation" (p. 1). The goal of logistic regression is "to find the best fitting and most parsimonious… model to describe the relationship between an outcome… and a set of independent variables" (Hosmer & Lemeshow, 1989, p.1).

Linear regression is not suited for situations with a binary dependent variable. One reason is because linear regression lines extend to negative and positive infinity, when all of the probabilities in a situation with a nominal dependent variable fall between

0 and 1 (Pampel, 2000). Second, Pampel wrote that if linear regression is applied in situations with categorical dependent variables, the assumption of homoscedasticity is violated. Specifically, the residual errors are small when the values of the dependent variable are close to 0 and 1. When the dependent variable is close to 0.5, however, the errors are larger. "As a result, the variance of the errors is not constant," wrote Pampel (2000, p. 9), and this violates a critical assumption of linear regression. Logistic regression is the correct analytic strategy for these situations because probabilities are transformed into logits and a linear relationship can be observed between independent variables and the logit transformation (Pampel, 2000, p. 15).

Logistic regression has a series of assumptions. First, Peduzzi et al. (1996) suggested that there be no less than 10 outcome events per predictor variable. Second, observations must be independent from each other, as was the case in this study. Third, there must be little to no multicollinearity, which was tested by creating a linear regression model of the relevant variables and checking to see that the variance inflation factors were below 4 (Penn State Eberly College of Science, n.d.a). Finally, logistic regression assumes the independent variables are linearly related to the log odds. The Box-Tidwell test was conducted to ensure this was the case (Wuensch, 2014).

### Data Analysis and Interpretation

**Descriptive Statistics Regarding College Deferment and Institutional Selectivity**

Descriptive statistics were generated for all study variables. Means, standard deviations, and score ranges were produced for all variables (Creswell, 2009). Subsequently, cross-tabulations were generated that show the distribution of variables by deferment status and then institutional selectivity. Lastly, I produced cross-tabulations of

variables by deferment status and selectivity. Chi squares and t-tests were conducted as appropriate to examine statistically significant differences between groups. This foundational information addressed the first research question and enabled a more nuanced interpretation of additional results in this study.

## College GPA as a Dependent Variable

SPSS computer software was used to explore the relationships between college deferment, institutional selectivity, covariates, and the dependent variable of college GPA. Three models were generated, all of which relied on multiple linear regression. Model 1 used the following linear regression equation:

$$\text{Model 1: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

$Y$ represents college GPA, which was measured on a continuous scale. $\beta_0$ represents the intercept of the linear regression line. The other $\beta$s represent the coefficients associated with the independent variables explored in the model. $X_1$ is the variable for college deferment (1 = immediate enrollment, 0 = deferred entry). $X_2$ is the variable of students' composite math/reading scores. $X_3$ is the variable socioeconomic status. $X_4$ is the variable representing sex, which was coded as a dummy variable (female = 1, male = 0). $X_5$ represents the series of dummy variables entered for race/ethnicity. Dummy variables were assigned for Native American, Asian/Pacific Islander, Black/African American, Hispanic/Latino, Multi-racial, and Caucasian/White. Caucasian/White is the reference category, and therefore excluded from the regression model. $\varepsilon$ represents normally distributed random error.

A second model was subsequently generated and analyzed, once again using multiple linear regression. The equation for Model 2 was:

$$\text{Model 2: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

The variables in this model are identical to the Model 1, however variable $X_6$, which represents institutional selectivity, was added to the model. It is a binary variable that groups students in colleges with Barron's levels 1 and 2, and those who enrolled in less selective colleges (levels 3 through 6). This strategy enabled the comparison of students who enrolled in highly selective institutions that have been the focus of prior gap year research (Birch & Miller, 2007; Clagett, 2013; Martin et al., 2013; Tenser, 2015) with students at less competitive institutions.

The third model using college GPA as a dependent variable was a fully interactive model that tested whether institutional selectivity acts as a moderator on the relationship between delay and college GPA:

$$\text{Model 3: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 +$$

$$X_6(\beta_7 X_1 + \beta_8 X_2 + \beta_9 X_3 + \beta_{10} X_4 + \beta_{11} X_5) + \varepsilon$$

The significance of the interaction term that is the product of delay and institutional selectivity showed whether delay had significantly different relationships with college GPA based on the institutional selectivity of the colleges students attended. This directly addressed the second research question of this dissertation. A fully interactive model was utilized to facilitate comparing coefficients between students who attended highly selective institutions and those who went to less selective colleges.

**Postsecondary Attainment as a Dependent Variable**

Three logistic regression models were generated to examine relationships between independent variables and postsecondary degree attainment, which is a binary outcome variable. The equations for these three models were:

Model 4: $\log(p_i/(1-p_i)) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$

Model 5: $\log(p_i/(1-p_i)) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$

Model 6: $\log(p_i/(1-p_i)) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 +$

$$X_6(\beta_7 X_1 + \beta_8 X_2 + \beta_9 X_3 + \beta_{10} X_4 + \beta_{11} X_5) + \varepsilon$$

The left side of the above equations represents the logit dependent variable, which is respondents' attainment of a college degree. $\beta_0$ represents the intercept of the logistic regression line. The other $\beta$s represent the coefficients associated with the independent variables explored in the study. Essentially, Models 1 and 4 are identical, as are Models 2 and 5, and 3 and 6, except that the dependent variable is changed from college GPA to degree attainment, and the equations represent logistic regression models and $\varepsilon$ represents logistically distributed random error. Model 6, similar to model 3, is fully interactive and examines whether deferment has a significantly different relationship with attainment based on the institutional selectivity of the colleges students attend.

In analyzing data from this study, I reported the constants in the logistic and linear regression equations, as well as the value of each of the $\beta$ coefficients. The purpose of running such similar models (e.g., Model 1, 2) was to observe whether and to what extent coefficients change in magnitude and statistical significance between models, thereby providing a richer understanding of the relationships between variables of interest.

**Sensitivity Analyses**

Recognizing that the findings of this study could be shaped by the decision to use four-year attainment rate as an outcome variable, I also ran Models 4, 5, and 6 with the dependent variable of attaining a college degree within six years of initially enrolling in

college. For these analyses, students were excluded from the sample if they deferred entry for more than two years since they would not have had six years to graduate before the final wave of data collection in 2012.

## Data Weighting

Data weighting is the process of modifying the "weight" placed on each participant in a dataset so that findings can be generalized to a population. In all analyses, I weighted the data so that the results applied to individuals nationwide who were enrolled in 12$^{th}$ grade in 2004. Based on the technical documentation supplied by NCES, I applied and normalized the weighting variable F3F1PNLWT, which is appropriate for analyses that follow ELS:2002 students who were high school seniors in 2004, and participated in the study through the administration of the third follow-up survey in 2012 (NCES, 2009).

## Correlation Versus Causation

Due to the observational nature of the ELS:2002 dataset and the analytic strategies employed (e.g., linear and logistic regression), the findings in this dissertation should be viewed as correlational. In other words, it would be incorrect to confidently interpret any significant relationships between an independent variable (e.g., deferring entry to college) and an outcome variable (e.g., college GPA) as causal. Primarily, I have tried to isolate the relationships between independent and dependent variables by including an array of covariates that have been shown to have significant relationships with the outcome variables in this study (e.g., socioeconomic status, prior academic performance). By doing so, the relationships between the focal variables of this

dissertation were not influenced by these covariates. Nevertheless, the results were influenced by selection bias and should therefore be considered correlational.

## Corrections for Clustered Standard Errors

This dissertation incorporated both individual- and college-level variables in most of the analytic models. Such multilevel data requires additional techniques to be used to estimate appropriate standard errors (e.g., multi-level modeling). One could also adjust the standard errors using robust or clustered standard error calculations. Since I did not use these methods, I relied on the recommendation of Thomas and Heck (2001), who wrote that studies can account for how multi-level data may affect standard errors in situations like these by cautiously interpreting p values. Therefore, in all models involving college-level variables, I considered relationships significant if $p < 0.01$, rather than the typical, less conservative, $p < 0.05$.

## Missing Data

For most variables in this study, there were few missing data. Specifically, between 2 and 5% of sample members were missing data for sex, race/ethnicity, and/or college deferment. Almost a third of individuals in the analytic dataset (32.0%), however, were missing data for the outcome variable college GPA. One way to address this level of missing data would have been to conduct multiple imputation and rely on existing relationships in the data to generate expected values for missing data (Lodder, 2013). However, it is not recommended to retain cases for analysis that were missing on the outcome variable (Graham, 2009; von Hippel, 2007). Therefore, I removed cases that were missing on the dependent variable. Once I took this step, the extent of missingness was small enough to suggest that complete case analysis was sufficient (Allison, 2001).

Therefore, rather than rely on imputation to replace missing values in the dataset, analyses were conducted only using complete cases.

## Predicted Outcomes and Effect Size

I determined the predicted outcomes along the dependent variables (i.e., college GPA, probability of attainment) for students who did and did not defer entry to college while incorporating covariates in the above models. Subsequently, I generated effect sizes by measuring the difference in predicted outcome for students who deferred entry and those who did not. In Models 1 and 2, I generated the predicted GPA for students who did and did not defer entry and I considered the effect size to be the difference between these values. I used the same approach for Models 4 and 5, which utilized logistic regression, except instead of producing predicted GPAs, I generated the predicted probability of attaining a degree within four years of enrollment. To make these probabilities, I converted the odds by exponentiating them and dividing this result by itself plus 1:

$$\text{Probability} = \text{exp. odds ratio} / (1 + \text{exp. odds ratio})$$

The effect size was the difference in predicted probability of attainment for a student who deferred entry and a student who did not.

## <u>Limitations</u>

There were an array of limitations concerning the data and methods used in this study. One of the greatest shortcomings was the outdatedness of study data, particularly in light of the fact that there has been huge growth in gap year infrastructure, opportunities, and participation since individuals in the ELS:2002 completed high school and made the choice whether to defer entry to college or not in 2004. Since this time,

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organizations focused on delivering, developing, and accrediting gap year programs have been founded (Gap Year Association, 2021). Additionally, some U.S. colleges (e.g. Tufts University, Princeton University) have created "bridge year" that provide admitted students with the opportunity to postpone their coursework for a year to participate in university-sponsored gap year programs. Unfortunately, due to the timeframe of the dataset, this dissertation cannot shed light on recent developments in the gap year landscape. There are, however, no nationally generalizable datasets that were collected in recent years that contain all of the variables needed to conduct the analyses in this dissertation, so ELS:2002 remained the best option for this study.

There has also been an increase in the number of U.S. students choosing to pursue gap year experiences in recent years. According to the Gap Year Association (GYA) (2021, para. 4), "gap year interest and enrollment trends continue to grow," and there was a particularly large spike in the number of students deferring entry due to the onset of the COVID-19 pandemic. Specifically, in fall 2020, GYA reached out to 27 colleges ranging from small private liberal arts colleges to large public universities and found that compared to a typical year, these institutions reported approving 317% as many student requests to defer their admission for a year to pursue gap year activities (2020). This idea was aligned with the finding that the number of first-time, first-year college students dropped 13% in fall 2020 (Othot, 2020). These data support the idea that the pandemic encouraged many recent high school graduates to pursue alternatives to higher education, and while the present study does not examine individuals who deferred entry to college during the start of the COVID-19 pandemic, the relevance of the present study is expanded by the reality that more students postponed starting their college careers.

Due to the limited number of participants in the ELS:2002 who deferred entry and attended highly selective colleges, I chose to group colleges with Barron's ratings of 1 or 2 in the category for highly selective institutions. Based on where prior gap year research has shown positive relationships between deferment and postsecondary success, it may have been more appropriate to determine the relationships between deferral and academic performance at colleges with a Barron's rating of 1, and then again using colleges with ratings between 2 and 6. Doing so was not practical, however, due to the small number of students that deferred entry and went on to enroll at institutions with a Barron's rating of 1. Therefore I chose to group institutions with ratings of 1 and 2, even though this may have limited the alignment between the present study and existing gap year research.

Another limitation of the study was the timeframe over which data were collected. For this study, I used the dependent variable of earning a degree within four years of enrolling in college. Ideally, I would have been able to expand the timeframe to see if students graduated within six or eight years of starting college, but the timeframe of the ELS:2002 dataset constrained my ability to do so. Additionally, the study did not examine the postsecondary success of students who deferred entry to college for more than four years.

Since this dissertation utilized an observational approach rather than an experimental or quasi-experimental design, its findings are subject to selection bias. Although I adjusted for relevant covariates, there are still differences between students who deferred and those who did not for which the study was unable to control. As a result, findings must be viewed as correlational rather than causal.

Non-random participant attrition from ELS:2002 is another limitation of the research. It is likely that students with certain characteristics withdrew from study participation at higher rates than students with other attributes (e.g., students who did not complete college versus those who did). Losing students from the sample in a non-random fashion would contribute to greater error in study results.

The Barron selectivity ratings used in the study were assigned based on colleges' selectivity in 2004. This coincides with the year that students in the sample were projected to start college. Students in the study who deferred entry to college, however, enrolled in college after 2004. Colleges' selectivity ratings may have changed from 2004 to students' date of enrollment and therefore this introduces some systematic measurement error into the results.

Unfortunately, the present study did not address students who enrolled in two-year colleges. Since Barron's selectivity ratings are only available for four-year institutions, two-year colleges were excluded from the study. Bozick and DeLuca (2005) demonstrated that students who deferred entry to college were more likely to enroll at two-year institutions than students who enrolled in higher education immediately after high school. It is important that other studies on deferred entry include students at two-year colleges.

## Summary

Despite the limitations discussed above, this study provides valuable insights on the relationships between deferred entry, institutional selectivity, and postsecondary success. This dissertation spans the divide between previous research on delayed entry and gap years by utilizing methodological approaches, covariates, and outcome variables

from both areas of the literature, and examines how institutional selectivity shapes the

postsecondary success of students who defer entry.

# CHAPTER 4 – RESULTS

The methods described in chapter three were carried out in order to address the two research questions in this study. I generated descriptive statistics regarding all study variables and conducted chi squares and t-tests to look for differences between students who did and did not defer entry to college, as well as differences among students who attended colleges of varying levels of institutional selectivity. Further, I produced cross-tabulations examining the distribution of students in the sample across deferment status and institutional selectivity.

I also conducted linear and logistic regressions to test for differences in the college GPAs and postsecondary attainment rates, respectively, between students who deferred entry to college and those who did not. I also examined whether these differences persisted when statistically adjusting for institutional selectivity, and I tested to see if institutional selectivity had a moderating effect on the relationships between deferment and the dependent variables. Prior to performing the aforementioned regressions, I conducted statistical analyses to test the assumptions of regression, which are described in this chapter, followed by the presentation and interpretation of statistical analyses. In chapter five, I discuss the implications of the results regarding the postsecondary success of students who do and do not defer entry to colleges across institutions of varying levels of selectivity.

## Descriptives of Study Variables

Table 2 contains the means, standard deviations, and ranges for study variables. These were all generated using the appropriate variable weights from ELS:2002. The mean college GPA of participants in the sample across all known institutions was 2.89 on

a 4.00 scale. Only 29% of individuals in the sample attained a bachelor's degree within four years of enrolling in college. An even smaller proportion (15%) of participants enrolled in a highly competitive college (i.e., Barron's level 1 or 2). Meanwhile, the vast majority of students in the sample enrolled in college immediately after graduating high school (93%), while 7% deferred entry.

Demographically, the sample was slightly more than half female (56%) and predominantly White (71%). Meanwhile, 12% of the sample was Black, 8% was Hispanic, 5% was Asian/Pacific Islander, 4% was multiracial, and 1% was Native American.[2]

**Table 2. Descriptive Statistics for Variables**

| Variable | Variable Description | Mean | Std Dev | Range Low, High |
|---|---|---|---|---|
| **(N=9,250)** | | | | |
| College GPA | Variable for students' grade point average across all postsecondary institutions they attended | 2.89 | 0.73 | 0, 4 |
| Attainment | Dummy variable indicating whether participants attained a bachelor's degree within four years of enrolling at a four-year college | 0.29 | 0.46 | 0,1 |
| Enrolled immediately after high school | Dummy variable indicating whether students enrolled in a four-year college in the semester immediately following their high school graduation | 0.93 | 0.25 | 0, 1 |
| Highly competitive college | Dummy variable indicating whether the first four-year institution attended by participants had a Barron's selectivity rating of 1 or 2, or lower | 0.15 | 0.36 | 0, 1 |
| Female | Dummy variable reflecting gender from base year of ELS:2002 | 0.56 | 0.50 | 0, 1 |

[2] Due to the small number of Native Americans in the sample, results regarding this subgroup should be interpreted with caution.

| Socioeconomic status | Standardized composite variable provided from ELS:2002 determined using 2002 baseline data based on parental education, occupation, and income | 0.33 | 0.69 | -2.11, 1.82 |
|---|---|---|---|---|
| Composite math/reading score | Composite math/reading score on standardized test administered in the base year of ELS:2002 | 56.20 | 8.30 | 20.91-81.04 |
| Hispanic | Dummy variable indicating Hispanic race/ethnicity from base year of ELS:2002 | 0.08 | 0.28 | 0, 1 |
| Native American | Dummy variable indicating Native American race/ethnicity from base year of ELS:2002 | 0.01 | 0.08 | 0, 1 |
| Asian/Pacific Islander | Dummy variable indicating Asian/Pacific Islander race/ethnicity from base year of ELS:2002 | 0.05 | 0.23 | 0, 1 |
| Black | Dummy variable indicating Black race/ethnicity from base year of ELS:2002 | 0.12 | 0.32 | 0, 1 |
| Multiracial | Dummy variable indicating multiracial race/ethnicity from base year of ELS:2002 | 0.04 | 0.18 | 0, 1 |
| White | Dummy variable indicating White race/ethnicity from base year of ELS:2002 | 0.71 | 0.46 | 0, 1 |

NOTE: All reported sample sizes are rounded to the nearest 10 in accordance with NCES restricted data license.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

## **Analysis of Study Variables by Deferment**

Looking at the cross-tabulation of students' deferment status and whether they attained a four-year degree within four years of enrolling in college, students who deferred entry to college earned degrees at much lower rates than students who went directly from high school to college (see Figure 3). Specifically, only 10.21% of students who deferred entry earned a bachelor's degree within four years of starting college, while 30.75% of students who did not defer entry attained a degree in this timeframe. A chi

square test (N = 117.07, df = 1) showed that this difference was statistically significant (p < 0.001).
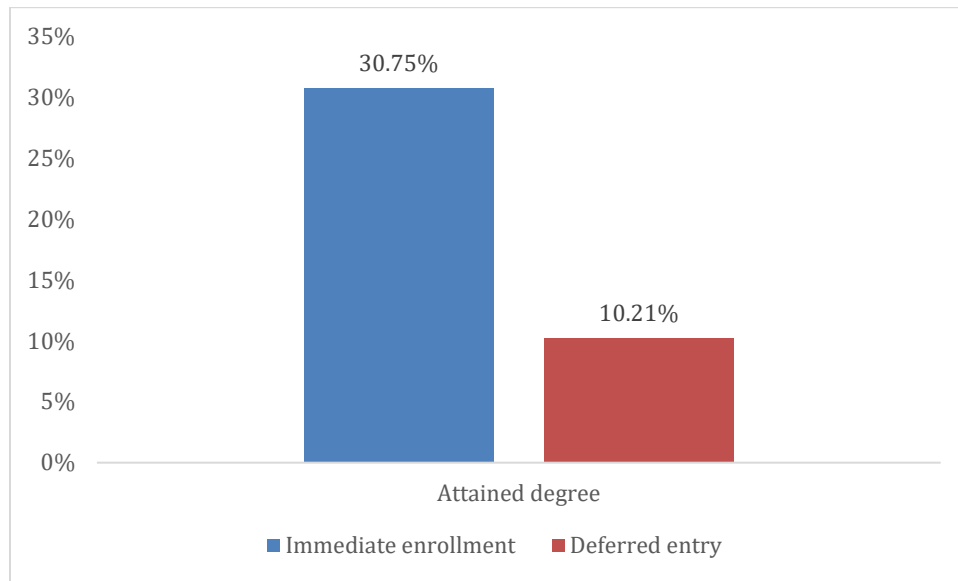
**Figure 3. Attainment by Deferment**

Results showed that larger proportions of males in the sample deferred entry to college compared to their female peers (Table 3). Males made up more than half of individuals who deferred entry to college (55.27%), and less than half of those participants who immediately enrolled in college (43.66%). Once again, a chi square test (N = 31.42, df = 1) showed that the difference was significant (p < 0.001).

**Table 3. Categorical and Ordinal Covariates by Deferment**

| | Immediate enrollment | | Deferred entry | |
|---|---|---|---|---|
| | n | % | n | % |
| Attainment in four years*** | | | | |
| Attained degree | 2,650 | 30.75 | 60 | 10.21 |
| Did not attain degree | 5,980 | 69.25 | 550 | 89.79 |
| Sex*** | | | | |
| Female | 4,860 | 56.34 | 280 | 44.73 |
| Male | 3,770 | 43.66 | 340 | 55.27 |

| Race/Ethnicity*** | | | | |
|---|---|---|---|---|
| Hispanic | 690 | 7.99 | 70 | 11.93 |
| Native American | 50 | 0.57 | <10 | 0.65 |
| Asian/Pacific Islander | 470 | 5.47 | 20 | 3.76 |
| Black | 960 | 11.09 | 120 | 18.95 |
| Multiracial | 300 | 3.48 | 20 | 3.76 |
| White | 6,160 | 71.41 | 380 | 61.60 |
| Highly competitive college*** | | | | |
| Levels 1, 2 | 1,360 | 15.79 | 60 | 9.89 |
| Levels 3-6 | 7,270 | 84.21 | 560 | 90.11 |

Significant differences indicated * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
NOTE: All reported sample sizes are rounded to the nearest 10 in accordance with NCES restricted data license.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

Looking at the race/ethnicity of study participants, Asian/Pacific Islander students and White students made up larger proportions of the group of students that enrolled immediately in college after high school compared to the group that deferred entry. Specifically, White students made up 71% of students in the sample who enrolled immediately in college and only 62% of students who deferred entry. For Asian/Pacific Islander students, they made up 6% of students who enrolled in college immediately after high school, but only 4% of students who deferred entry.

On the other hand, multiracial, Native American, Hispanic, and Black students made up larger proportions of students who deferred entry. The gap was largest for Black students who made up 11.09% of students who enrolled immediately in college and 18.95% of students who deferred entry. A one-way ANOVA and Tukey test were conducted. The overall ANOVA was significant and the Tukey showed that White and Asian students were significantly more likely than Black and Hispanic students to enroll in college immediately after high school ($p < 0.001$). Overall, these results indicate that

students from historically underrepresented racial groups deferred entry to college at higher rates than White and Asian students.

The cross-tabulation of students by deferment status and the level of institutional selectivity of the first four-year college they attended revealed that students who attended highly competitive colleges (i.e. Barron's levels 1 and 2) made up a larger proportion of the group of students who enrolled in college immediately after high school (15.79%) than the cadre of students who deferred enrollment (9.89%). Correspondingly, students who initially enrolled in less selective colleges had greater representation in the group of students who deferred entry (90.11%) than the group that enrolled in college immediately after high school (84.21%). I conducted a chi square test (N = 15.39, df = 1) which showed that the difference was statistically significant (p < 0.001).

Results indicated that students who enrolled in college immediately after graduating high school had a higher mean college GPA than students who deferred entry. Specifically, the mean value for this outcome variable for students who did not defer entry was 2.91, which was slightly higher than the mean for the entire sample (2.89). Meanwhile the mean college GPA for students who deferred entry was 2.61, which was far below the sample mean (Figure 4). The difference between the two groups was 0.30, which is 40% of a standard deviation. An independent t-test showed that the means for the two groups were significantly different at a level of p < 0.001.
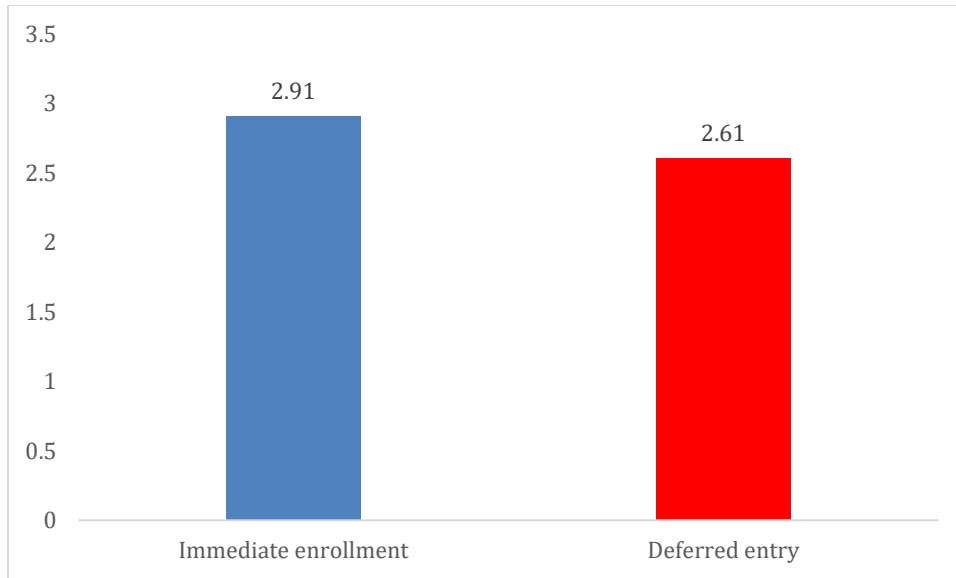
**Figure 4. College GPA by Deferment**

Concerning covariates, there was a substantial difference in the socioeconomic statuses of students who deferred entry to college and those who enrolled immediately in college after finishing high school (Table 4). The mean SES for students who did not defer entry was 0.35, which is slightly above the mean for the entire sample (0.33). Meanwhile the mean SES for students who deferred entry was 0.11, which is well below the mean for the whole sample (Table 4). In other words, the difference between the mean SES of students who did and did not defer was 0.24, which is approximately one-third of a standard deviation. An independent t-test revealed that this difference was statistically significant at a level of $p < 0.001$.

**Table 4. Continuous variables by deferment**

| | Immediate enrollment | | Deferred entry | | Difference |
|---|---|---|---|---|---|
| | Mean | Std. Dev. | Mean | Std. Dev. | |
| College GPA | 2.91 | 0.71 | 2.61 | 0.90 | 0.30*** |

| | | | | | |
|---|---|---|---|---|---|
| Socioeconomic status | 0.35 | 0.68 | 0.11 | 0.70 | 0.24*** |
| Composite math/reading score | 56.56 | 8.16 | 51.18 | 8.56 | 5.38*** |

Significant differences indicated * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
NOTE: All reported sample sizes are rounded to the nearest 10 in accordance with NCES restricted data license.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

Analysis also showed that students who deferred entry to college had significantly lower composite math/reading scores than their counterparts. The mean for students who did not defer entry to college was 56.56, which was slightly above the mean for the entire sample (56.20). Meanwhile, the mean for students who did defer was 51.18. The difference between these values (5.38) was 65% of a standard deviation and a t-test revealed that these means were statistically different at a level of $p < 0.001$.

Overall, students who deferred entry to college came from more disadvantaged backgrounds than their counterparts who went straight to college after high school. Specifically, they were more likely to be Black or Hispanic, and they had significantly lower composite scores for SES. Students who deferred also exhibited lower levels of academic performance in high school and college, attended less selective colleges, and were less likely to have graduated within four years compared to students who enrolled in college immediately after high school.

**Analysis of Study Variables by Selectivity**

In order to generate a better understanding between the demographic characteristics and academic outcomes between students who attend more and less selective postsecondary institutions, I generated cross-tabulations with institutional selectivity and the other key variables in this dissertation. Close to half of participants in

the sample who attended highly competitive colleges (50.88%) earned a bachelor's degree within four years (Table 5). This was almost double the proportion of students who attained a degree at less selective institutions (25.47%) (Figure 5). A chi square confirmed (N = 374.74, df = 1, p < 0.001) that this difference was significant.



SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).
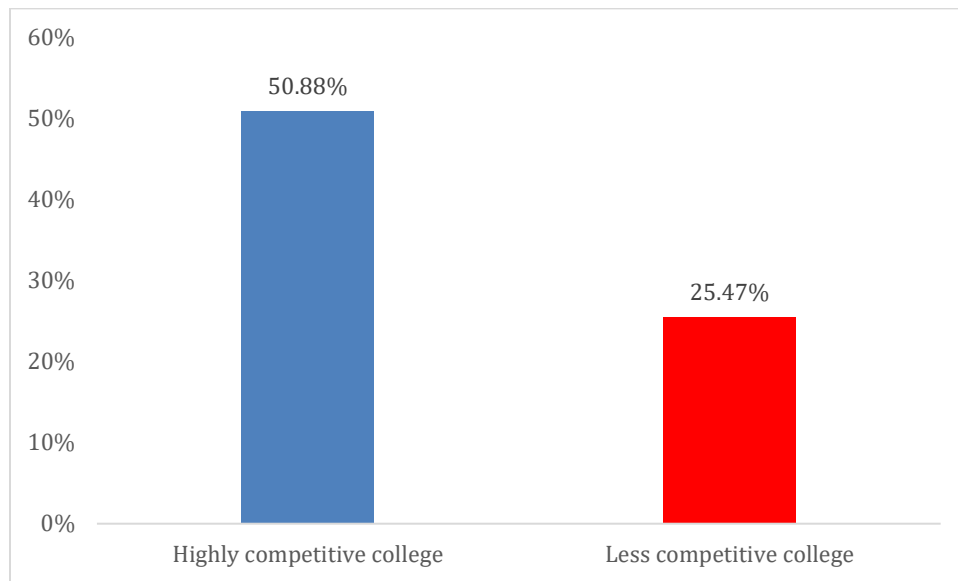
**Figure 5. Attainment by Selectivity**

Looking at the race/ethnicity of students in the sample and the selectivity of the colleges in which they enrolled, Asian/Pacific Islander students made up 10.27% of students at highly competitive colleges, but only 4.46% of students at less competitive colleges (Table 5). On the other hand, Black students made up 4.99% of students at highly competitive colleges, but 12.81% of students at less competitive colleges. A one-way ANOVA revealed significant differences overall, and a Tukey test showed that these differences were between Asian/Pacific Islander students and all other categories, as well as between Black and Hispanic students, Black and multiracial students, and Black and

White students ($p < 0.001$), with Black students being less represented at highly selective colleges.

**Table 5. Categorical and Ordinal Variables by Institutional Selectivity**

|  | Highly competitive college | | Less competitive college | |
|---|---|---|---|---|
|  | n | % | n | % |
| Attainment in four years*** |  |  |  |  |
| Attained degree | 720 | 50.88 | 1,990 | 25.47 |
| Did not attain degree | 700 | 49.12 | 5,830 | 74.53 |
| Sex* |  |  |  |  |
| Female | 740 | 52.62 | 4,380 | 56.04 |
| Male | 670 | 47.38 | 3,440 | 43.96 |
| Race/Ethnicity*** |  |  |  |  |
| Hispanic | 110 | 8.02 | 650 | 8.30 |
| Native American | <10 | 0.28 | 50 | 0.63 |
| Asian/Pacific Islander | 150 | 10.27 | 350 | 4.46 |
| Black | 70 | 4.99 | 1,000 | 12.81 |
| Multiracial | 50 | 3.59 | 270 | 3.48 |
| White | 1,040 | 72.86 | 5,500 | 70.33 |

Significant differences indicated * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
NOTE: All reported sample sizes are rounded to the nearest 10 in accordance with NCES restricted data license.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

A chi square showed that the difference in the distribution of male and female students across institutions of varying levels of selectivity was not statistically significant. Specifically, 52.62% of students who attended highly selective colleges were female, compared to 56.04% of students at less competitive colleges. As for males, they made up 47.38% of sample students at highly selective institutions and 43.96% of students at less selective colleges.

Results showed that students who attended highly competitive colleges earned significantly better grades in college than their counterparts at less selective schools (Figure 6). The mean GPA for students at highly competitive colleges was 3.20, while

students at less selective schools earned an average GPA of 2.84. This difference was slightly larger than half of a standard deviation and significant at a level of p < 0.001.
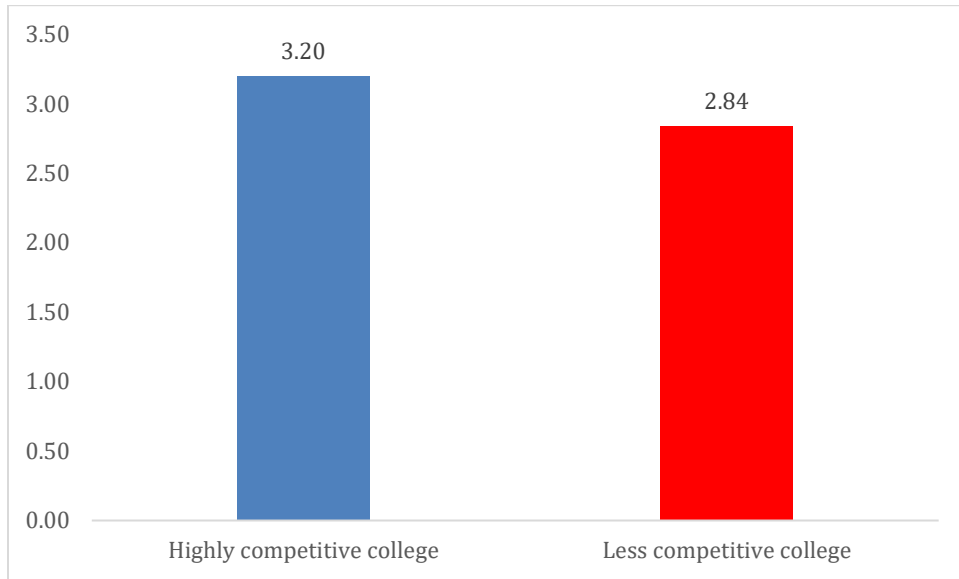
**Figure 6. Mean GPA by Institutional Selectivity**

Looking at the socioeconomic status of participants who attended highly selective colleges versus less selective colleges, students at more selective institutions came from higher SES backgrounds. The mean value for students at highly selective institutions was 0.66, while it was 0.27 for students at less selective colleges (Table 6). The difference between the SES scores (0.39) was more than half a standard deviation and an independent t-test showed that the difference was significant at a level of p < 0.001.

**Table 6. Continuous Variables by Institutional Selectivity**

| | Highly competitive college | | Less competitive college | | Difference |
|---|---|---|---|---|---|
| | Mean | Std. Dev. | Mean | Std. Dev. | |
| College GPA | 3.20 | 0.59 | 2.84 | 0.74 | 0.36*** |
| Socioeconomic status | 0.66 | 0.66 | 0.27 | 0.67 | 0.39*** |

| | | | | | |
|---|---|---|---|---|---|
| Composite math/reading scores | 61.40 | 7.39 | 55.26 | 8.11 | 6.14*** |

Significant differences indicated * p < 0.05, ** p < 0.01, *** p < 0.001
NOTE: All reported sample sizes are rounded to the nearest 10 in accordance with NCES restricted data license.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

Similarly, there was a significant difference between the composite math/reading scores of students in the sample who attended highly competitive colleges and those who attended less selective institutions. Specifically, the mean for students at highly selective institutions was 3.20 and it was 2.84 for students at less selective colleges. The difference between the scores was more than three-quarters of a standard deviation and the difference was significant ($p < 0.001$).

Overall, students who attended less selective postsecondary institutions came from backgrounds historically underrepresented in higher education. For example, students who enrolled at less selective colleges were more likely to be Black than their counterparts, and they had significantly lower SES scores. Additionally, they had lower levels of secondary and postsecondary academic performance.

### Analysis of Study Variables by Deferment and Selectivity

In this dissertation, I examined whether institutional selectivity moderates the relationship between deferment and the outcome variables of college GPA and degree attainment. While logistic and linear regression were used to formally test if there was a significant difference in the relationships between deferment and dependent variables across students who attend colleges of varying levels of selectivity, the tables below were created to show differences in descriptive statistics between students who deferred and

those who did not within selectivity groups. Additionally, I conducted chi squares and t-tests to test for significant differences.

There was a tremendous difference in the attainment rates of students at highly selective institutions based on deferment status. Specifically, while 52.42% of students who attended highly selective colleges and did not defer entry earned a degree within four years, only 18.03% of students at colleges of this level of selectivity who deferred entry earned a degree in this timeframe (Figure 7). A chi square test indicated that this difference was significant at a level of $p < 0.001$. This trend carried over to students at less selective colleges, although the difference was smaller in magnitude. Specifically, 26.70% of students who enrolled immediately in college earned a degree compared to only 9.35% of students who deferred entry. This difference was also significant at a level of $p < 0.001$.
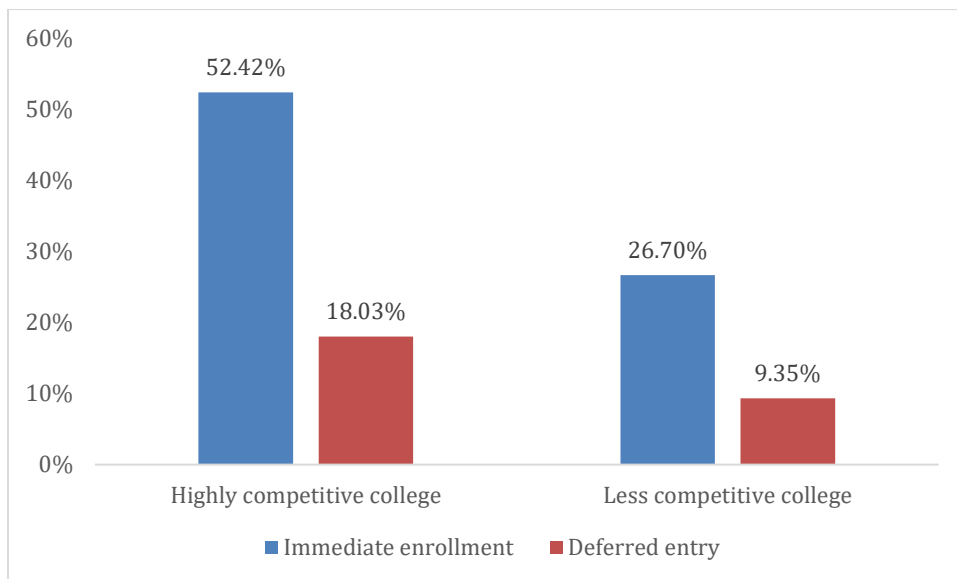


SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

**Figure 7. Attainment Rates by Institutional Selectivity and Deferment**

Looking at the distribution of students by sex, females made up 54.19% of students who attended highly selective colleges and enrolled immediately after high school. On the other hand, women made up only 27.96% of students at highly selective institutions who deferred entry (Table 7). This significant difference ($p < 0.001$) shows that male students at highly selective institutions deferred entry at almost triple the rate of women. There was also a significant difference ($p < 0.001$) in the distribution of male and female students who deferred entry and enrolled immediately at less selective institutions, although the difference was less pronounced.

**Table 7. Categorical and Ordinal Variables by Deferment and Institutional Selectivity**

|  |  | Immediate enrollment | Deferred entry | Difference |
|---|---|---|---|---|
|  |  | % | % |  |
| Attained degree in four years | Highly competitive college | 52.42% | 18.03% | 34.39%*** |
|  | Less competitive college | 26.70% | 9.35% | 17.35%*** |
| Female | Highly competitive college | 54.19% | 26.23% | 27.96%*** |
|  | Less competitive college | 56.75% | 46.76% | 9.99%*** |
| Hispanic | Highly competitive college | 8.08% | 4.92% | 3.16% |
|  | Less competitive college | 7.97% | 12.59% | -4.62*** |
| Native American | Highly competitive college | 0.29% | 0.00% | 0.29% |
|  | Less competitive college | 0.62% | 0.72% | -0.10% |
| Asian/ Pacific Islander | Highly competitive college | 10.28% | 11.48% | -1.20% |
|  | Less competitive college | 4.58% | 3.06% | 1.52% |
| Black | Highly competitive college | 5.22% | 0.00% | 5.22% |
|  | Less competitive college | 12.19% | 20.86% | -8.67*** |

| | | | | |
|---|---|---|---|---|
| Multiracial | Highly competitive college | 3.38% | 6.56% | -3.18% |
| | Less competitive college | 3.48% | 3.42% | 0.06% |
| White | Highly competitive college | 72.69% | 77.05% | -4.36% |
| | Less competitive college | 71.16% | 59.35% | 11.81%*** |

Significant differences indicated * p <0.05, ** p <0.01, *** p <0.001
NOTE: All reported sample sizes are rounded to the nearest 10 in accordance with NCES restricted data license.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

Regarding race/ethnicity, Black students made up 12.19% of students at less competitive colleges who enrolled immediately, but a significantly larger proportion (p < 0.001) of students that deferred entry (20.86%). The same was true for Hispanic students (p < 0.001). On the other hand, larger proportions of White students who attended less selective institutions enrolled in college immediately (71.16%) compared to those who deferred entry 59.35%). A chi square revealed that this difference was also significant at a level of p < 0.001.

Looking at the differences in continuous variables by institutional selectivity and deferment status, students who enrolled immediately after high school at both highly selective colleges and less selective colleges received significantly higher grades than students who deferred entry (p < 0.001). Specifically, students at highly selective institutions who enrolled immediately in postsecondary education after completing high school had a mean GPA that was 0.33 higher than their counterparts who deferred entry (Figure 8). Similarly, the difference in GPAs between students who enrolled immediately and deferred entry at less selective institutions was 0.27.
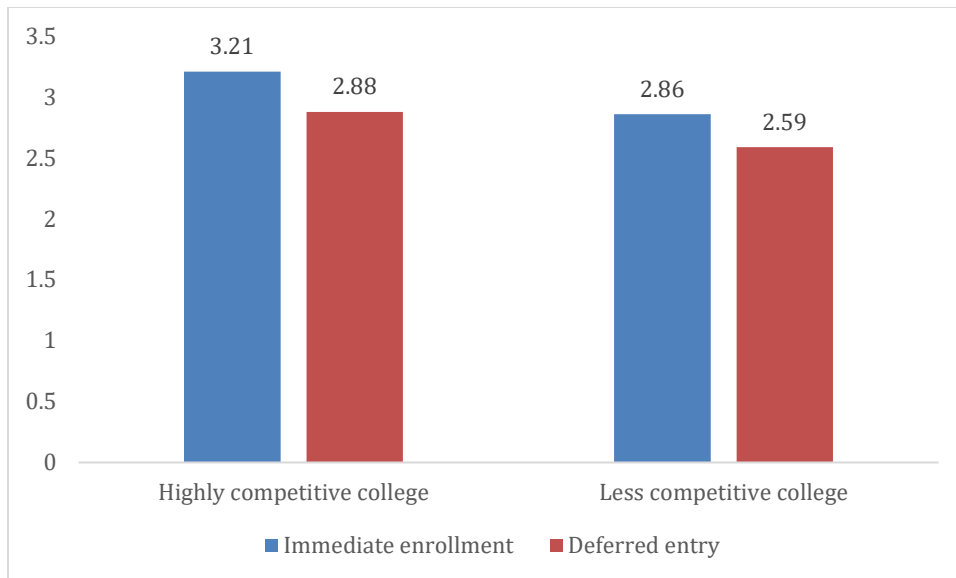
**Figure 8. Mean GPA by Institutional Selectivity and Deferment**

At both highly selective and less selective colleges, students who enrolled immediately in college had higher mean SES scores, but the difference between their scores and those of students who deferred entry was only significant at less selective colleges. Meanwhile, students who enrolled immediately at both highly selective institutions and less selective institutions had higher mean standardized test scores than students who deferred entry (Table 8). The magnitude of the difference between students who deferred and did not defer for participants at highly selective institutions was almost a full standard deviation, while it was closer to half of a standard deviation at less selective institutions.

**Table 8. Continuous Variables by Deferment and Institutional Selectivity**

| | Immediate enrollment | | Deferred entry | | Difference |
|---|---|---|---|---|---|
| | Mean | Std. Dev. | Mean | Std. Dev. | |

| | | | | | | |
|---|---|---|---|---|---|---|
| College GPA | Highly competitive college | 3.21 | 0.58 | 2.88 | 0.71 | 0.33*** |
| | Less competitive college | 2.86 | 0.72 | 2.59 | 0.91 | 0.27*** |
| Socioeconomic status | Highly competitive college | 0.67 | 0.65 | 0.51 | 0.71 | 0.16 |
| | Less competitive college | 0.29 | 0.67 | 0.07 | 0.69 | 0.22*** |
| Composite math/reading scores | Highly competitive college | 61.69 | 7.23 | 54.91 | 7.97 | 6.78*** |
| | Less competitive college | 55.60 | 7.97 | 50.77 | 8.53 | 4.83*** |

Significant differences indicated * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
NOTE: All reported sample sizes are rounded to the nearest 10 in accordance with NCES restricted data license.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

## Assumptions of Regression

As discussed in the methods section, both multiple linear and logistic regression rely on several key assumptions. Accommodations must be made for any violated assumptions or regression should be substituted with a methodological approach that better suits the data. This section contains descriptions and results of the tests that were performed to ensure the assumptions were not violated, as well as any methodological accommodations or changes that were made in response to any violations.

## Assumptions of Multiple Linear Regression

### Test for Normality

A test for normality determines whether the errors between observed and predicted values are normally distributed. To test this assumption, I examined a predicted

probability plot of regression model 2, which tests the relationship between institutional

selectivity, deferment status, and covariates with college GPA. The plot showed that the

residuals of the regression follow a normal distribution (Cohen, et al., 2003) (Figure 9).

**Test for Multicollinearity**

I tested model 2 for multicollinearity, which can occur if variables are highly

correlated with each other. This can produce incorrectly estimated regression coefficients

(Penn State Eberly College of Science, n.d.a). To check for multicollinearity, I examined

the variance inflation factors (VIFs) of variables in the model to ensure that they were all

below 4.0 (Penn State Eberly College of Science, n.d.a). The VIFs for variables in the

model ranged from 1.012 to 1.396 indicating that multicollinearity was not problematic.

**Test for Homoscedasticity**

Homoscedasticity is the assumption that the error variance of the dependent

variable is similar across different values of the independent variable (Cohen, et al.,

2003). To test this assumption, I created a scatter plot of standardized predicted values

and residuals and checked it for homoscedasticity (Figure 10). The somewhat conical

appearance in the scatter plot indicated that there was a mild violation of the assumption

of homoscedasticity. According to Astivia and Zumbo (2019), heteroscedastic data in an

OLS regression affects the standard errors and statistical significance, but not the

regression coefficients. Additionally, the violation of homoscedasticity must be rather

severe for the violation to present a problem given the robust nature of OLS regression

(Statistics Solutions, 2021). Therefore, to account for the somewhat heteroscedastic

nature of the data, I exercised caution when interpreting the statistical significance of the

variables in the OLS models. I had already lowered the threshold for interpreting

statistical significance to p < 0.01 since I did not use multilevel modeling. In response to the somewhat heteroscedastic nature of the data, I further lowered the threshold for statistical significance to p < 0.001 in the OLS regression models.

**<u>Test for Linearity</u>**

I examined whether there was a linear relationship between the dependent variable (i.e., college GPA) and each of the independent variable predictors in Model 2 measured on a continuous scale (i.e., socioeconomic status, composite math/reading score). I generated scatter plot matrices and a scatter plot of the standardized predicted values and the standardized residuals (Cohen, et al., 2003). Although some of the relationships were not perfectly linear, they did not appear to deviate to a degree that would be problematic for my study's purposes, especially since regression is robust to minor violations of linearity.

## Logistic Regression Assumptions

Like OLS regression, logistic regression has a series of assumptions. First, Peduzzi et al. (1996) suggested that there be no less than 10 outcome events per predictor variable. With 9,250 outcome events and 10 predictor variables, this study meets this criterion. Second, observations must be independent from each other, as is the case in this study. Third, there must be little to no multicollinearity, which I tested by creating a linear regression model of the relevant variables and checking to see that the variance inflation factors are below 4 (Penn State Eberly College of Science, n.d.a). The VIFs for variables in the model ranged from 1.012 to 1.396 indicating that multicollinearity was not problematic.

The last assumption of logistic regression is that continuous independent variables are linearly related to the log odds of the dependent variable. I tested this assumption using the Box-Tidwell test (Wuensch, 2014). First, I transformed the socioeconomic status variable since it had negative values.[3] Subsequently, I conducted the Box-Tidwell test and results showed that socioeconomic status was not linearly related to the log odds ($p = 0.027$). The scatter plot depicting the relationship between SES and the logit of the dependent variable showed a slightly positive linear relationship between these variables (Figure 11). Importantly, it did not reveal a parabolic or other obvious relationship between these variables. Although the result of the Box-Tidwell test was significant, this violation is of limited concern because the relationship between the variables was observed to be somewhat linear in the scatter plot, and the variable that violated the assumption was a covariate rather than a focal independent variable of the study. The large sample size also reduces concern regarding this violation and therefore I proceeded with the analyses as planned.

## Regression Results

### OLS Regression

I performed an ordinary least squares regression to examine the correlation between deferment and college GPA while adjusting for covariates as a means of isolating the focal relationship. The findings from Model 1 reflected that students who enrolled immediately in college after completing high school had significantly higher

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[3] $1 + |(\text{minimum of socioeconomic status})| + \text{socioeconomic status} = \text{Transformed socioeconomic status}$

college GPAs than students who deferred entry to college. The relationship was significant at the level of p < 0.001 and the unstandardized beta coefficient had a value of 0.100, indicating that when adjusting for other variables in the model, students who enrolled immediately in college after finishing high school were expected to have a college GPA that was 0.100 points higher (on a 4.0 scale) than their peers who deferred entry to college.

The covariates of female, socioeconomic status, and composite math/reading score were also significant and were positively correlated with students' grades in college. Relative to males, females were expected to have a GPA that was 0.263 points higher. Relative to the reference category of White students, Black students had significantly lower GPAs (p < 0.001) and the difference in expected GPA was 0.408 points.

Model 2 is identical to Model 1 except that institutional selectivity was added as an independent variable. Running this model showed that attending a highly selective college had a significant and positive relationship with college GPA. Specifically, the p value was less than 0.001 and the coefficient was 0.152, indicating that students who attended colleges with Barron's selectivity ratings of 1 or 2 were predicted to have a GPA that was 0.152 points higher than students who attend less selective institutions.

When statistically adjusting for institutional selectivity, immediate enrollment was still positively correlated with college GPA, as the p value was less than 0.001 and the coefficient was 0.101. This signals that even when one statistically adjusts for the selectivity of the postsecondary schools students attend, those who deferred entry are predicted to have a lower GPA than students who did not delay entry. In regards to

covariates, socioeconomic status, composite math/reading scores, and being female had positive relationships with college GPA. Like Model 1, students who were Black had significantly lower grades than their White counterparts. The coefficients for covariates in Model 2 were very similar to those Model 1 with the exception of SES, which decreased from a value of 0.070 in Model 1 to 0.058 in Model 2.

Model 3 added the interaction term for institutional selectivity and college deferment. The p value for this term was 0.734, indicating that institutional selectivity did not act as a moderator on the relationship between deferment and college GPA. In other words, the relationship between deferment and college GPA was not different for students attending highly selective colleges and those attending less selective colleges – deferment was negatively correlated with GPA for both groups of students.

To better gauge the influence of deferment on students' college performance, I generated predicted GPAs for students who did and did not defer entry to college using results from Models 1 and 2. Specifically, I entered the unstandardized β coefficients for each variable and produced the predicted college GPAs of students who did and did not defer entry. In Model 1, the predicted college GPA of a student who enrolled immediately in postsecondary education immediately after high school was 2.679, while the predicted college GPA for someone who deferred entry was 2.579. In Model 2, the predicted GPA for a student who pursued immediate enrollment was 2.653, while it was 2.552 for a student who deferred entry. Model 3 was a fully interactive model examining whether institutional selectivity was a moderator on the relationship between deferment and college GPA. The $R^2$ value of this model was identical to that of Model 2, indicating that selectivity did not moderate this relationship.

**Table 9. Predictors of College GPA – OLS Regression**

| Variable | Model 1 (R²=0.200) Unstandardized β | p | Model 2 (R²=0.205) Unstandardized β | p | Model 3⁴ (R²=0.205) Unstandardized β | p |
|---|---|---|---|---|---|---|
| Enrolled immediately after high school | .100 | .001 | .101 | .001 | .099 | .002 |
| Highly competitive college | --- | --- | .152 | .000 | .315 | .150 |
| Highly competitive college X Enrolled immediately after high school | --- | --- | --- | --- | .037 | .734 |
| Female | .263 | .000 | .264 | .000 | .264 | .000 |
| Socioeconomic status | .070 | .000 | .058 | .000 | .051 | .000 |
| Composite math/reading scores | .025 | .000 | .023 | .000 | .024 | .000 |
| Hispanic | -.065 | .035 | -.078 | .011 | -.075 | .023 |
| Native American | -.254 | .020 | -.259 | .017 | -.266 | .019 |
| Asian Pacific Islander | -.002 | .952 | -.029 | .429 | -.021 | .621 |
| Black | -.408 | .000 | -.413 | .000 | -.411 | .000 |
| Multiracial | -.114 | .011 | -.119 | .007 | -.144 | .003 |
| (Constant) | 1.065 | .000 | 1.134 | .000 | 1.108 | .000 |

*N=9,250
NOTE: All reported sample sizes are rounded to the nearest 10 in accordance with NCES restricted data license.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

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[4] Model 3 was a fully interactive model, and included the interactions between institutional selectivity and the covariates (i.e., gender, SES, composite math/reading score, and the race/ethnicity categories). The β coefficients for these variables are not presented in the table below because they are not relevant to the research questions in this study.

**Logistic Regression Results**

I conducted a series of logistic regressions to determine the relationships between variables of interest and students' attainment of a four-year college degree. Looking at the relationship between deferred entry and degree attainment while adjusting for covariates, Model 4 showed that there was a significant relationship between deferment and attainment ($p < 0.001$). Specifically, the odds of a student who immediately enrolled in college earning a degree in four years were 2.5 times higher than for a student who deferred entry. Since the odds ratio was greater than 1.0, this indicated that students who enrolled in college immediately after high school were more likely to earn a degree than students who took a break between high school and college.

The regression model also revealed that females, students from higher SES backgrounds, and those with better composite math/reading scores were significantly more likely to earn a degree than their counterparts. There were no significant differences in the attainment rates between any racial group and the reference category (i.e., White students).

Model 5 is a reproduction of Model 4 with the addition of institutional selectivity as an independent variable. As with the above model, enrolling immediately in college after high school had a significant and positive relationship with attainment of a four-year degree. There was also a significant, positive relationship between attending a highly competitive college and degree attainment, and as with Model 4, there were significant, positive correlations between being female, being of higher socioeconomic status, and having better composite math/reading scores. There were no differences between the attainment rates of White students and students of other racial identities.

Model 6 is identical to Model 5, but it also includes the interaction term for institutional selectivity and college deferment, as well as interaction terms between covariates and institutional selectivity. The p value for the interaction term for institutional selectivity and deferment was 0.520 and the adjusted $R^2$ value of Model 6 was equivalent to that of Model 5. These findings indicate that institutional selectivity was not a moderator on the relationship between deferment and attainment and the relationship between deferment and attainment was the same for students who attended highly selective colleges and students who attended less selective colleges.[5]

**Table 10. Predictors of Attainment – Logistic Regression**

| Variable | Model 4 (Adjusted $R^2$ = 0.161) | | Model 5 (Adjusted $R^2$ = 0.176) | | Model 6[6] (Adjusted $R^2$ = 0.177) | |
|---|---|---|---|---|---|---|
| | Exp(β) | p | Exp(β) | p | Exp(β) | p |
| Enrolled immediately after high school | 2.506 | 0.000 | 2.517 | 0.000 | 2.411 | 0.000 |
| Highly competitive college | --- | --- | 1.966 | 0.000 | 1.348 | 0.673 |
| Highly competitive college X Enrolled immediately after high school | --- | --- | --- | --- | 1.285 | 0.520 |
| Female | 1.860 | 0.000 | 1.869 | 0.000 | 1.897 | 0.000 |
| Socioeconomic status | 1.469 | 0.000 | 1.386 | 0.000 | 1.369 | 0.000 |
| Composite math/reading scores | 1.078 | 0.000 | 1.069 | 0.000 | 1.069 | 0.000 |
| Hispanic | 1.059 | 0.556 | 0.988 | 0.899 | 0.887 | 0.290 |
| Native American | 1.192 | 0.603 | 1.174 | 0.637 | 1.098 | 0.796 |
| Asian Pacific Islander | 1.251 | 0.036 | 1.103 | 0.370 | 0.977 | 0.862 |
| Black | 0.789 | 0.015 | 0.767 | 0.006 | 0.724 | 0.002 |
| Multiracial | 1.201 | 0.159 | 1.171 | 0.227 | 1.129 | 0.404 |
| Constant | 0.001 | 0.000 | 0.004 | 0.000 | 0.001 | 0.000 |

*N=9,250
NOTE: All reported sample sizes are rounded to the nearest 10 in accordance with NCES restricted data license.

[5] I conducted sensitivity analyses using degree attainment within six-years as the dependent variable. There were no important differences in the outcomes of Models 4, 5 or 6 when using this outcome variable in place of attainment within four years.
[6] Model 6 also included the interactions between institutional selectivity and the covariates, but they are not presented because they are not relevant to the research questions in this study.

To calculate the effect sizes for Models 4 and 5, I determined the predicted probabilities of attaining a degree for students who deferred and did not defer entry while holding all other variables constant at their means. I considered the difference between the predicted probabilities for students who deferred and those who did not as the effect size.

Model 4 did not consider institutional selectivity and the probability of attaining a postsecondary degree decreased by 9.53% if a student did not enroll in college immediately after graduating high school. Model 5 did factor in institutional selectivity, and results showed that the likelihood of attaining a degree decreased by 9.46% if a student deferred entry. Meanwhile, the probability of attaining a degree declined by 10.64% if a student enrolled at a college that is not rated as highly competitive. Regarding covariates, females had an 8.3% greater chance than males of attaining a degree, while Black students had a 3.4% lower chance of earning a bachelor's in four years compared to their White counterparts.

**Table 11. Predicted Probabilities of Degree Attainment and Effect Sizes**

| Variable | Model 5 | | | | |
|---|---|---|---|---|---|
| | Binary Variable Value | | Continuous Variable Value | | |
| | 0 | 1 | Mean | Mean + S.D. | Differences / Effect Sizes |
| Enrolled immediately after high school | 0.075 | 0.170 | ---- | ---- | 0.095 |
| Highly competitive college | 0.148 | 0.254 | ---- | ---- | 0.106 |
| Female | 0.119 | 0.202 | ---- | ---- | 0.083 |
| Socioeconomic status | ---- | ---- | 0.161 | 0.194 | 0.033 |
| Composite math/reading scores | ---- | ---- | 0.161 | 0.251 | 0.090 |
| Hispanic | 0.161 | 0.159 | ---- | ---- | -0.002 |
| Native American | 0.161 | 0.183 | ---- | ---- | 0.023 |

| | | | | | |
|---|---|---|---|---|---|
| Asian Pacific Islander | 0.160 | 0.174 | ---- | ---- | 0.014 |
| Black | 0.165 | 0.132 | ---- | ---- | -0.034 |
| Multiracial | 0.160 | 0.179 | ---- | ---- | 0.018 |

NOTE: All reported sample sizes are rounded to the nearest 10 in accordance with NCES restricted data license.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

## Summary

Overall, the results from this study indicated that students who deferred entry to college were more likely to come from disadvantaged backgrounds and perform worse in college than their counterparts. In response to research question 1, which compared students who did and did not defer entry in terms of their demographics, postsecondary success, and the selectivity of the colleges they attended, descriptive statistics revealed that 7% of students in the sample who deferred entry to college came from lower SES backgrounds and had significantly lower composite math/reading scores. They also had lower college GPAs and attainment rates. Logistic and OLS regression models supported these findings, as students who deferred entry to college exhibited significantly lower rates of postsecondary success even when adjusting for covariates.

Research question 2 examined whether institutional selectivity served as a moderator on the relationship between deferment and postsecondary success. Results showed that this was not the case and students who deferred entry exhibited lower levels of academic success at college regardless of the selectivity of the postsecondary institutions they attended.

In the subsequent discussion, I examine these results more thoroughly and discuss their scholarly and theoretical implications, offer recommendations for policy-makers,

students and educators, and provide suggestions future research on the topic of deferred

entry.

# CHAPTER 5 – DISCUSSION

## <u>Overview of Study</u>

Prior research examining the outcomes associated with deferring entry to college after graduating high school has generally fallen into one of two categories: delayed entry or gap years. Studies on delayed entry have posited that students lose "academic momentum" (Adelman, 1999) when they take time away from formal education, and they have generally used US-based nationally-representative datasets to show that students who defer entry to college graduate on-time at lower rates than their peers who enroll in college immediately after completing high school (Attewell et al., 2012; Bozick & DeLuca, 2005; Goldrick-Rab & Han, 2011; Roksa & Velez, 2012). Delayed entry research has also revealed that students who defer are much more likely than their counterparts to come from historically underrepresented groups and low socioeconomic backgrounds (Goldrick-Rab & Han, 2011; Roksa & Velez, 2012).

On the other hand, gap year research has demonstrated that deferring entry to college is associated with receiving better grades in college, as well as higher levels of academic motivation (Birch & Miller, 2007; Clagett, 2013; Martin et al., 2010) and "a heightened sense of self authorship" (Tenser, 2015, p. 76). Unlike research on delayed entry, quantitative gap year studies have generally been conducted at highly selective colleges and some utilized datasets from Australia (Birch & Miller, 2007; Clagett, 2013; Martin, 2010; Martin et al., 2013). Another difference between gap year and delayed entry research is that studies on gap years have generally shown that students who participate in such experiences tend to be male and from high SES backgrounds (Lamb, 2001; Hoe, 2014).

The aim of this dissertation is to partially span the disconnect in the findings between previous research on delayed entry and gap years. I attempt to do so by utilizing outcome variables from both areas (i.e., attainment and college GPA), using a nationally-representative US-based dataset, and testing for possible differences in relationships across postsecondary institutions with varying levels of selectivity. As I noted in my conceptual framework, prior studies on deferred entry have examined how some layers in Bronfenbrenner's ecological systems theory are related to postsecondary success. Specifically, existing literature has looked at the individual (e.g., controlling for student attributes), and factors in the microsystem (e.g., life course events) and chronosystem (e.g., length of deferment). They have not, however, investigated the role that the mesosystem – specifically, the postsecondary institutions students attend after deferment – plays in shaping students' academic success in college.

Although this dissertation utilized a dataset that resembled those used in delayed entry research rather than prior studies on gap years, I statistically adjusted for institutional selectivity and utilized it as a moderator in some regression models. These efforts were taken to examine whether deferring entry to college had different relationships with college GPA and attainment rates based on the competitiveness of the colleges students attended. The goal of this approach was to shed light on relationships between deferment and academic success in college and whether they vary across levels of institutional selectivity.

## **Review of Research Questions and Methods**

The research questions in this study were:

1. How do students who defer entry compare with their peers who enroll immediately in college in terms of their demographics, their postsecondary success, and the selectivity of the four-year colleges they attend?

2. To what extent does deferred entry have disparate associations with college GPA and degree completion for students who attend four-year postsecondary institutions with varying levels of selectivity?

Using data from ELS:2002 and a sample frame that included participating students who enrolled in a four-year college by fall of 2008, multiple linear and logistic regression models were utilized to compare the postsecondary success of students who deferred entry to college to those who enrolled immediately in a four-year college after completing high school. The study operationalized postsecondary success as college GPA and attainment of a college degree within four years of enrolling.

A key attribute of this study was the inclusion of institutional selectivity to examine whether the relationships between deferring entry to college and postsecondary success are different for students who attend colleges of different levels of selectivity, as the literature and preliminary analyses have indicated that this may have been the case. Institutional selectivity was determined using Barron's College Admissions Selector Ratings from 2004. Covariates in the study included socioeconomic status, composite math/reading scores, sex, and race/ethnicity.

Three multiple linear and logistic regression models were used in analyses. Linear regression was used for models with college GPA as the outcome variable and logistic regression was used for models with attainment as the outcome variable. The most basic OLS and logistic models (i.e., Models 1 and 4) contained deferment and covariates as

independent variables. Subsequently, institutional selectivity was added to the models (i.e., Models 2 and 5). Lastly, fully interactive models were produced to test the hypothesis that institutional selectivity served as a moderator (i.e., Models 3 and 6). In addition to reporting β coefficients and p values, I calculated the effect size of deferment in Models 1, 2, 4, and 5.

<u>**Scholarly and Theoretical Implications**</u>

**Sample Characteristics and Demographics**

Analysis revealed that only 7% of students in the sample deferred entry to college, while the remaining 93% of students enrolled immediately in a four-year institution after finishing high school. This is drastically lower than the 33% reported by Horn et al. (2005), but higher than the 1% of U.S. students who take a gap year according to Baker (2013). One reason the number of students deferring in the sample of this study was below that reported by Horn et al. is because the sample frame for this study only included students who deferred for four or fewer years. There are many individuals who do not enroll in college immediately after finishing high school, but decide to pursue higher education five or more years later. Such individuals were excluded from the sample of the present dissertation, but included in Horn's tally of the proportion of students who defer entry.

Another explanation for the discrepancy between the proportion of all U.S. high school graduates who defer entry to college and the proportion in the sample for this study is that this dissertation excluded students who began their postsecondary educational careers at community colleges. Bozick and DeLuca (2005) found that when statistically adjusting for covariates, students who deferred entry to college were more

likely to enroll at two-year institutions than students who enrolled in college immediately following high school. By excluding students at two-year colleges from the sample, the proportion of students who deferred entry to college became smaller.

In regards to the 1% of students in the United States who take a gap year according to Baker (2013), the relatively large proportion of deferrers in the sample for the present study is due to the lack of restrictions on the activities that students pursued during their deferment period. Baker, like many gap year scholars, only considered students to have pursued a gap year if they partook in certain activities during their break from formal education (Jones, 2004; Martin, 2010; Selingo, 2016; Tenser, 2015). Additionally, Baker, like other authors who have published on the topic of gap years, only considered students to have taken a gap year if their deferment period lasted one year (Hoe, 2014; Krause et al., 2005).

## Demographics by Deferment

Comparing participants who deferred entry to college to those who enrolled immediately, results showed that women made up a larger proportion of individuals who went directly to college, while men made up more than half of the participants who deferred entry to college. This finding aligns with delayed entry research conducted by Attewell et al. (2012), as well as gap year literature produced by Hoe (2014), which both showed that U.S. students who deferred entry to college were more likely to be male than female.

Looking at participants' race/ethnicity, White and Asian/Pacific Islander students made up larger proportions of the group of respondents who did not defer entry to college, while Hispanic and Black participants were overrepresented in the proportion of

students who did. The differences in the proportions of Native Americans and multiracial participants who did/did not defer entry was negligible. These findings support prior research on delayed entry, as Goldrick-Rab and Han (2011) showed that delayers are more likely to be Black or Hispanic than other ethnicities. Meanwhile, Hoe (2014) determined that gap year students (i.e., those who defer for only one year and who spend their time before college traveling and/or working) were more likely to be White than from underrepresented racial backgrounds. This finding indicated that the sample in this study resembled samples from prior research on delayed entry more so than those used for studies on gap year participation.

There was a significant difference in the socioeconomic statuses of students who deferred entry to college and those who enrolled immediately after finishing high school. Specifically, students who deferred entry to college came from lower SES backgrounds than their counterparts. This gap in socioeconomic status supports findings from Goldrick-Rab and Han's research on delayed entry (2011), which showed that delayers were substantially more likely than their peers to come from low socioeconomic backgrounds. On the other hand, Lamb (2001) showed that in Australia, students who deferred entry came from higher socioeconomic backgrounds than students who did not defer. Also, Hoe (2011) found that U.S. students who participated in gap years were significantly more likely to come from high-SES backgrounds. This highlights another way in which the members of the sample in the present study are more like those from prior research on delayed entry than gap years.

Looking at participants' composite math/reading scores, students in this study who enrolled immediately in college had significantly higher composite math/reading

scores than those who deferred entry. This finding is supported by prior research on delayed entry like that conducted by Attewell et al. (2012), which found that students who deferred entry to college had significantly lower high school grades than students who went directly to college. As for prior studies on gap years, Hoe (2014) found that students who took a gap year tended to have higher standardized test scores than their counterparts who enrolled immediately in postsecondary education. This reflects yet another way in which the present sample is more similar to those used in delayed entry research than studies on gap years.

Results also showed a significant correlation between deferring entry to college and attending a less competitive college. This finding reflects those from research conducted by Bozick and DeLuca (2005), which found that students who defer entry to college tend to enroll in less selective institutions. This finding reinforces the importance of including institutional selectivity in studies on college deferment. Without doing so, studies on the effects of college deferment have been and will continue to be tainted by the reality that students who defer entry are more likely to attend less selective colleges, and students who attend such colleges graduate at lower rates and have lower college GPAs, as indicated by the results of this study.

Overall, the results showed that students who deferred entry had lower levels of academic preparation and were more likely to come from disadvantaged backgrounds relative to their peers who enrolled immediately in postsecondary education. This finding reflects prior research on delayed entry and opposes studies on gap years, which utilized samples in which students who deferred entry were more likely to be White, from high SES backgrounds, and have higher levels of academic preparation. This is an important

indication that research that has indicated the benefits of gap years has relied on utilizing narrow datasets that do not adequately reflect the actual national trends in who defers entry to college.

## Demographics by Institutional Selectivity

Analyses revealed a number of significant differences in the rates at which students of different demographic groups attended highly competitive and less competitive four-year colleges. For example, Asian/Pacific Islander students attended highly competitive colleges at significantly higher rates than Hispanic, Native American, Black, Multiracial, and White students, while Hispanic, White, and Multiracial students all attended such institutions at higher rates than their Black peers. These findings indicate that female and Black students were underrepresented at highly competitive institutions, and Asian/Pacific Islander students were overrepresented.

There were also significant differences between attendees of highly competitive and less competitive colleges by composite math/reading scores and socioeconomic status. It is unsurprising that students who performed worse on the standardized test given to ELS:2002 participants in the first year of the study attended highly competitive institutions at a lower rate than their higher-scoring peers, since the test is designed to measure the same skills that are the focal point of the college admissions process. Similarly, there was a negative relationship between socioeconomic status and attending a highly competitive college. This reflects the trend in the United States that students from wealthier families have greater access to the most selective colleges (Bastedo & Jaquette, 2011).

Analyses also revealed a significant difference in the outcome variables for students at highly competitive colleges and those who attended less competitive colleges. Specifically, students at more competitive colleges had higher grade point averages than students at less competitive colleges. As for attainment rates, participants at highly selective colleges earned their degrees at double the rate of students at less selective colleges. These findings show the importance of adjusting for institutional selectivity in studies with samples that span colleges of varying levels of competitiveness and examine the grades and/or attainment rates of students. Since deferrers are overrepresented at less selective colleges (based on findings from this dissertation and previous literature), and students at such institutions have lower GPAs and attainment rates, failure to statistically adjust for institutional selectivity when studying deferred entry could produce incorrect findings on the postsecondary success of students who defer (Bozick & DeLuca, 2005).

## Demographics by Deferment and Institutional Selectivity

In addition to examining the role of institutional selectivity as a moderator on the relationship between deferment and postsecondary success through linear and logistic regression, descriptive statistics were created and t-tests and chi squares were executed to search for differences by deferment status within bands of institutional selectivity. One finding central to the research questions of this study was that students at highly selective and less selective colleges who deferred enrollment had significantly lower attainment rates and college GPAs than students at similarly competitive institutions who enrolled immediately. The difference in attainment rates by deferment status for students at highly selective institutions was particularly striking, as half of students (52%) who enrolled in college immediately earned a degree within four years, but only 18% of students who

deferred graduated in this timeframe. This finding stands in stark contrast with prior research on gap years that have shown positive relationships between deferment and postsecondary success. Meanwhile, there was also a negative correlation between deferment and degree attainment at less selective colleges, but it was not as pronounced.

In regards to college GPA, students who enrolled immediately in college had significantly higher GPAs than their counterparts who deferred entry and this was true at highly selective and less selective institutions. Unlike attainment, however, the magnitude in difference across institutional selectivity was much more similar. Again, the negative relationship between GPA and deferment contrasts with existing literature on gap years.

There were also noteworthy differences between students who deferred entry and those who did not within bands of institutional selectivity that speak to the importance of considering the competitiveness of colleges when studying the relationships between college deferment and postsecondary success. For example, at highly selective colleges, women made up only a quarter of participants who deferred entry, while at less selective colleges, close to half of the students who deferred entry were female. This finding shows the interplay between selectivity and deferment, and that individuals who defer entry vary demographically depending on the competitiveness of the colleges they attend.

Another example of differences in student characteristics by deferment and institutional selectivity is the race/ethnicity of students. At highly selective colleges, White students made up more than three-quarters of the students who deferred entry. At less selective colleges, however, Whites made up slightly less than 60% of deferrers. As for Black students, they made up 21% of students at less selective colleges who deferred

entry, while 0% of Black students in the sample who attended a highly selective college deferred entry. Findings indicate that at less selective institutions, deferrers are more likely to be Black or Hispanic rather than White, while White students make up a larger percentage of deferrers at highly selective colleges than less selective colleges. This reflects the contrasting findings of gap year and delayed entry research, as Hoe (2014) showed that students who took a gap year were more likely to be White, while research on delayed entry revealed that students who did not enroll immediately were more likely to be Black or Hispanic (Attewell et al., 2012; Goldrick-Rab & Han, 2011).

As for socioeconomic status, students who deferred entry and attended less selective institutions had significantly lower SES scores than their classmates who enrolled in college immediately after high school. Meanwhile, at highly selective institutions, students who deferred came from lower SES backgrounds than students who did not defer, but the difference was not statistically significant. The lack of a significant difference can be attributed, in part, to the relatively small number of students in the sample who attended highly selective institutions. The magnitude of the difference in the SES scores of students at highly selective institutions who did and did not defer entry was 24% of a standard deviation. Therefore, although the difference was not statistically significant, students who deferred entry at highly selective colleges came from substantially lower SES backgrounds than students who enrolled immediately in college after high school. Altogether, these findings reflect that regardless of institutional selectivity, students who postpone enrolling in college come from lower socioeconomic backgrounds than their counterparts.

The academic preparation of students at highly selective and less selective colleges was negatively correlated with immediate enrollment in college. This reflects that students who deferred entry had lower academic abilities in high school. The difference in the scores of students who did and did not defer entry and attended highly selective postsecondary institutions was particularly pronounced, as it measured close to an entire standard deviation. One might assume that there would be little variation in the academic abilities of students who enroll at highly selective colleges, but clearly this is not the case and there exists a strong negative relationship between prior academic abilities and immediately enrolling in college.

This pronounced finding merits future research, which could include examining the relationship between academic performance in high school and students' decision to defer entry, or testing whether academic preparation may moderate the relationship between deferment and postsecondary success. Future studies may also test whether race, gender, length of deferment period, or SES has an interaction effect on the relationship between deferment and postsecondary success, as the contrasting findings of the literature on gap years and delayed entry indicate that something moderates the relationship between deferment and academic achievement in college. Further, ecological systems theory lends merit to the idea that an experience like deferring entry to college could help some students in college while hindering others based on other aspects of students' identity or their life experiences.

The differences in the characteristics of deferrers and immediate enrollers by institutional selectivity demonstrate the importance of considering selectivity when studying the relationships between deferring entry to college and postsecondary success.

Since prior studies on delayed entry and gap years did not consider institutional selectivity, they overlooked some key nuances regarding the attributes of students who defer entry and this may be a factor that enabled these bodies of research to produce contradictory findings.

## College GPA by Deferment

Descriptive analyses showed that students who enrolled immediately in a four-year college upon graduating high school earned higher grades in college than their peers who deferred entry. Looking within bands of institutional selectivity, students at both highly selective and less selective colleges who deferred entry had significantly lower GPAs than their counterparts.

These findings were supported by the OLS regression Models 1 and 2, which utilized college GPA as the dependent variable. Results from these models indicated that students who deferred entry to college received significantly lower grades than their peers when adjusting for covariates, as well as when adjusting for institutional selectivity. Specifically, in Model 1, deferring entry was associated with having a 0.100 lower GPA, while deferment was associated with a 0.101 lower GPA in Model 2. These findings are noteworthy because they contradict existing studies on gap year participation which show that deferring entry to college is correlated with getting better grades in college. It is also worth noting that adding institutional selectivity as a covariate in Model 2 did not influence the magnitude of the relationship between deferment and college GPA.

Many prior studies reporting academic benefits of deferring entry to college were conducted at highly competitive colleges. The present study examined whether the relationship between deferment and college GPA varied by institutional selectivity in

Model 3. Results showed that regardless of the selectivity of the colleges students attended, their GPAs were lower if they deferred entry. Therefore, institutional selectivity did not serve as a moderator. This finding refutes the idea that there is a positive relationship between deferment and college GPA for students at highly competitive institutions.

The results of this dissertation clearly refute findings from existing gap year studies. Not only did the data in this study not support the notion of a positive relationship between deferment and college GPA at highly selective institutions, it actually found a *negative* relationship between these variables. This raises the question of how prior gap year studies conducted at highly competitive institutions showed a positive relationship between deferment and GPA. Possible explanations include conducting the research in other countries (Birch & Miller, 2007; Martin et al., 2013) and failure to adjust for relevant covariates like SES (Clagett, 2013). Another explanation is that the institutions considered highly selective in the present study did not align with the institutions where gap year research was conducted. For example, the institutions where Clagett conducted his research (i.e., Middlebury College and UNC at Chapel Hill) both fell into Barron's level 1 (most competitive colleges). In this dissertation, I compared the postsecondary success of students enrolled at institutions with a selectivity rating of 1 or 2 to those with a rating of 3 or higher. This was done out of necessity, due to the limited number of students in the ELS:2002 dataset who deferred entry and attended a college with a Barron's rating of 1. This mismatch could have contributed to the contrasting findings between this study and prior gap year literature.

There were no surprises regarding relationships between covariates and college GPA in Models 1 and 2. As prior research in U.S. contexts has shown time and again, there was a significant negative relationship between college GPA and being male, coming from low SES backgrounds, having lower levels of prior academic achievement, and being Black.

**Attainment by Deferment**

There was a striking and significant difference in the rates at which students who deferred entry graduated from college within four years of enrollment compared to those who did not defer entry. Specifically, 31% of students who enrolled immediately in higher education after finishing high school graduated in four years. On the other hand, only 10% of students who deferred entry attained a degree within four years. This finding shows relatively low attainment rates for both groups, but more importantly in the context of this dissertation, students in the sample who deferred entry to college graduated at much lower rates than their counterparts.

Examining the differences in four-year attainment rates within selectivity levels, students who enrolled immediately at both highly selective colleges and less selective colleges graduated within four years at significantly higher rates than students who deferred entry. This finding gives the preliminary indication that institutional selectivity is not a moderator in the relationship between selectivity and attainment.

Looking at the results of the logistic regression models examining the relationships between the independent variables and attainment, there was a significant positive relationship between enrolling immediately in postsecondary education and graduating college within four years. This finding supports prior research on delayed

entry which showed that deferring college leads to a decreased likelihood of graduating within a given timeframe. Deferred entry also had a negative relationship with attainment in Model 5, thus showing that even when statistically adjusting for institutional selectivity, students who took a break from formal education after high school were less likely to attain a degree within four years.

Looking at the effect sizes, results showed that the predicted probability of attaining a degree was approximately 10% higher for students who enrolled immediately. It was also about 10% higher for students who enrolled in highly competitive colleges. The comparable magnitudes of these effect sizes showed that it is important to adjust for institutional selectivity when studying relationships between deferment and attainment, since the selectivity of the colleges students attended influenced their attainment just as much as their decision to defer. Additionally, there were larger proportions of students who deferred entry at less selective colleges than highly selective colleges, so failure to adjust for institutional selectivity in studies on college deferment could produce erroneous findings.

Model 6 was a fully interactive model and results showed that the relationship between deferment and attainment was similar for students at highly selective and less selective colleges. This indicates that the negative relationship between immediate enrollment in college and attainment was not significantly different for students across institutions of varying levels of selectivity. In other words, whether students attended a highly selective college or a less selective one, their likelihood of graduating within four years was negatively affected if they deferred entry.

Similar to the OLS models that used college GPA as the dependent variable, many of the covariates in Models 4 and 5 had significant relationships with attainment. The directionality of these relationships was unsurprising given the countless studies that have shown which groups of students tend to excel in higher education, and which do not. Specifically, students who attended highly competitive colleges, came from high SES backgrounds, and performed better on the baseline assessment of academic abilities attained degrees at significantly higher rates than their counterparts. Meanwhile, male students attained degrees at lower rates than females.

## Theoretical Implications

Bronfenbrenner's (1992) ecological systems theory, and the application of the theory to college student readiness by Arnold et al. (2012), served as the conceptual framework for this dissertation. Arnold and colleagues asserted that a student's readiness for college is shaped by factors in their environment, with some being more proximal to the student than others. Given the similarities between what makes a student ready for college and what enables a student to succeed in college, I applied the model created by Arnold et al. to explain how college deferment and other factors shape a students' postsecondary academic success.

Through the lens of ecological systems theory, prior research on deferred entry examined student characteristics (e.g., SES, race/ethnicity) and elements in the microsystem (e.g., work, family) and chronosystem (e.g., length of deferment period, timing of life course transitions). This dissertation built on prior research by examining the colleges students attended, which are considered part of the mesosystem as they are

environments where factors in the microsystem (e.g., teachers, peers, social media sites) interact.

Based on starkly different levels of selectivity of the colleges where prior research on gap years and delayed entry was performed, as well as preliminary analysis of ELS:2002 data, I focused on the selectivity of the postsecondary institutions students attended. Specifically, I examined whether institutional selectivity moderated the relationships between deferment and the outcome variables of college GPA and attainment. Findings indicated that institutional selectivity did not moderate these relationships.

This result, however, should not be interpreted to mean that the mesosystem does not play a critical role in shaping the postsecondary success of students who defer entry as there may be ways besides selectivity that colleges influence the relationship between deferment and academic success in college. These could include the use of pedagogical practices that value the additional life experience that students bring to college with them after deferring entry, or colleges providing convenient, discounted childcare for students whose responsibilities as parents encouraged them to defer beginning postsecondary education.

Ecological systems theory and the work of Arnold et al. (2012) also emphasize that a student's college readiness depends not on individual factors, but on the interaction of multiple influences in the ecological systems theory model. While results from this study showed that institutional selectivity did not moderate the relationship between deferment and postsecondary success, ecological systems theory supports the idea that the interaction of other variables with deferment may explain the contrasting findings

between the bodies of research on delayed entry and gap years. Future research should test whether this is the case. As mentioned previously, it could be fruitful to explore whether SES, academic preparation, or length of deferment moderate the relationship between deferment and postsecondary success.

## Summary of Scholarly and Theoretical Implications

This dissertation showed that students who deferred entry to college had lower rates of postsecondary success than their counterparts. This held true even when statistically adjusting for institutional selectivity. Additionally, incorporating selectivity into regression models did not alter the effect size of deferment on college GPA or degree attainment. Furthermore, results indicated that institutional selectivity did not have a moderating effect on the relationship between deferment and postsecondary success. Nevertheless, adjusting for institutional selectivity in studies on the relationship between deferment and postsecondary success is crucial because deferrers tend to enroll in less selective institutions than their counterparts and students at less selective institutions have lower GPAs and attainment rates.

Results from this study did not unearth how gap year research has been able to show positive relationships between deferment and academic success at college. In fact, this dissertation revealed a negative association between deferment and postsecondary achievement at highly selective and less selective colleges alike. This outcome challenges the validity of gap year studies, which have relied on utilizing small samples at a limited number of highly selective institutions, and have failed to incorporate important covariates like socioeconomic status.

It remains feasible that the individuals who deferred entry and participated in U.S.-based gap year research represent an especially small and privileged demographic who is able to utilize a deferment period to improve their preparation for college. It is important to recall, however, that the results of this dissertation show that even students who defer entry and go on to enroll at highly selective colleges perform worse in college than their peers. Going forward, researchers who explore the relationship between deferment and post-secondary success should be sure to adjust for covariates like socioeconomic status, and be explicit about the characteristics of their sample, particularly in regard to types of privilege or socioeconomic advantage participants have.

## Implications for Practice

### Advising High School Students

In general, high school guidance counselors, parents, admissions counselors, and other individuals advising high school students about their postsecondary plans would be wise to discourage students from deferring entry to college. There are many two- and four-year colleges across the United States, including online and place-based options, that admit all applicants (Berkman, 2020), so all high school graduates have the option to immediately attend college regardless of their grades or test scores. Findings from this dissertation indicate that students will achieve greater academic success in college if they choose not to defer postsecondary education.

When students are exploring the idea of deferment, counselors should be transparent with them about the costs revealed in this study and others that show that students who take a break from formal education after high school receive lower grades in college and are less likely to attain a degree in a timely manner. Of course, education is

not a one-size-fits-all phenomenon, and some students will be well served by deferring entry to college, but the present study clearly shows that deferment is generally correlated with worse performance in college.

Based on a previous descriptive analysis of ELS:2002 data, some common reasons students in the study deferred entry to college were because they wanted to work, pursue travel or other interests, or because they needed to earn money to afford school. High school guidance counselors could more effectively steer their students toward immediate enrollment by familiarizing them with opportunities to pursue these activities while enrolled in college, such as internships, work study, study abroad, scholarships, and other ways to attain financial assistance to make college more affordable.

Educators and college leaders may also want to consider implementing targeted strategies for making higher education more accessible to students, particularly to those from demographic groups who are more likely to defer entry to college. The U.S. Department of Education (2001) showed that students whose parents did not go to college enroll in postsecondary rates at lower levels than their peers, and the present study revealed that students from low SES backgrounds, as well as Black and Hispanic students, are more likely to defer entry to college. To promote immediate enrollment in higher education, schools can focus on helping students and families from the aforementioned backgrounds understand and engage in the college admissions and financial aid processes.

### Supporting College Students Who Deferred

Colleges understand that it is in their best interest to help their students graduate. Doing so leads to more satisfied and affluent alumni who are prepared to contribute to

society and give back to their alma mater, and it also bolsters institutions' rankings. In order to retain and graduate more students, many institutions utilize predictive modeling to assess which students, even those who have not yet taken a single class, may need more support in order to graduate (Barshay & Aslanian, 2019). This dissertation shows that colleges should consider students' deferment status in their predictive models to best determine which students might need extra support to earn their degrees.

Unfortunately, the present study reveal why deferring entry to college is related to lower levels of postsecondary academic success. Andrews (2018), however, showed that students who deferred entry to college participated in fewer high impact practices (e.g., internship, study abroad) once enrolled compared to their peers who enrolled immediately. High impact practices have been linked to higher attainment rates (Kuh, 2008), so deferrers' low participation rates in such activities may be a contributing factor to their lower levels of postsecondary success. Of the handful of high impact practices he examined, Andrews revealed that mentorship is a particularly effective practice for boosting the completion rates of students who defer. Therefore, colleges can direct students who postpone entry to college toward mentorship opportunities as a way to foster their success. Mentorship and other high impact practices, however, should not be viewed as a panacea for helping students who defer entry regain their academic momentum. Andrews showed that the effects of deferment on attainment rates were negative above and beyond the positive effects of participation in high impact practices.

**Implications for Policy**

The findings from this study should serve as an imperative to policymakers to encourage more students to enroll in college immediately after high school without

deferring entry. This does not necessarily mean pushing all high school graduates to attend college, but rather making college more accessible for the many students who enroll in college, but only after taking a break from formal education.

The results from this study showed that students from socioeconomically disadvantaged backgrounds were more likely to defer than their counterparts. By investing in initiatives aimed at expanding access for underrepresented groups like Upward Bound and TRIO, policymakers can help students feel more prepared for college immediately following their high school graduation. Policymakers can also work to improve the finances of students and families from disadvantaged backgrounds or lower the costs associated with attending college. Examples would include expanding grant-based aid for low-income students or implementing social safety net programs that provide funds toward families with children (e.g., child tax credit).

Time-specific incentives could also be developed where students receive increased aid if they start college immediately after high school. Looking at the amount of money spent on assisting postsecondary students who do not complete college, incentives like these that encourage immediate enrollment (which is correlated with higher likelihood of attaining a degree) could result in net financial gains for students, families, and governments alike.

Today, it is a common practice in higher education for colleges to allow students to defer their acceptance for a year. Some colleges, including sector leaders like Harvard, even state on their websites that they "encourage admitted students to defer enrollment" (Harvard College, 2021). While not allowing students to defer their acceptance may turn off some students, families, and college counselors, encouraging students to enroll

immediately after high school would be in their best interest based on the results of this study. This course of action can be considered by admissions professionals as a way to reduce the number of students who defer entry to college.

<u>**Implications for Research**</u>

**Utilizing More Recent Data in Future Studies**

There are a multitude of ways that future research can continue to explore the topic of deferred entry and shine light on its relationship with postsecondary success. One such way would be to conduct studies similar to this one using more recent data. Since ELS:2002, the National Center for Education Statistics conducted the High School Longitudinal Study of 2009 (HSLS: 09), which was a US-based nationally-representative longitudinal study of more than 23,000 students who were in ninth grade in 2009. Postsecondary transcript data from the study became available in 2017.

Unfortunately, this dataset is not well suited to addressing the research questions in this study related to attainment for students who deferred entry because the last wave of data collection occurred three years after students were expected to complete high school. Therefore, there would not be adequate data on degree attainment. On the other hand, HSLS:09 data could be used to look at differences in students' college GPAs based on their deferment status, although the dataset would only include two years of GPA data for students who deferred entry for one year, and one year of GPA data for students who deferred for two years.

One reason why it is so important to conduct additional research on deferred entry using more contemporary data is because in the past decade, there have been major shifts in the landscape of programs for students who defer entry to college, as well as the

proportion of students who choose to postpone higher education. For example, the Gap Year Association (GYA) was founded in 2012, and since that time, the organization has awarded accreditation to hundreds of gap year programs that "meet the most rigorous standards in the field" (Gap Year Association, 2021, para. 4). GYA has also named certain postsecondary institutions Official Gap Year Colleges. The establishment of GYA and implementation of their programs and certifications reflect the expanded role that gap years play in the postsecondary educational decisions of U.S. high school graduates and indicate the need for more research on the relationships between deferred entry to college and postsecondary success.

Another signal of the expanded role of deferred entry programs in the educational landscape of the United States is that some colleges have created "bridge year" programs, which provide admitted students with the opportunity to postpone their coursework for a year to participate in university-sponsored gap year programs. Princeton University and Tufts University are two institutions that have pioneered such programs, which typically give students the chance to live abroad and complete "transformative, [global], community-based service learning experiences" (Princeton University, 2021, para. 2).

The number of students choosing to defer entry to college may also increase substantially in the near future as a result of the COVID-19 pandemic. As mentioned previously, the number of first-time, first-year students enrolled in U.S. colleges dipped 13% in 2020 and this will likely lead to a short-term increase in the number of U.S. students who start college after a period of deferred entry. Considering the possibly spike in the number of students who defer entry and the major changes in gap year programs

since ELS:2002 was conducted, there is a clear need to conduct more research on deferred entry using recent data.

## Expanding Variables and Sample in Future Research

While the present study challenged some of the findings from gap year research, it is important to highlight that this may be due to the fact that this dissertation did not include some variables utilized in other gap year studies. For example, in her research, Hoe (2014) limited gap years to only include students who deferred to work, travel, or pursue another activity that was not listed in the survey. ELS:2002 contains information on the reasons why students deferred entry, but did not capture robust information on the activities participants pursued during their deferment. Future research should examine whether there is a relationship between deferment activities and postsecondary success.

Another way future research could build on this study is by examining how long students defer entry to college and whether there is a relationship between the duration of students' deferment period and their postsecondary success. Hoe (2014) and Krause et al. (2005) defined gap years as lasting exactly one year and did not consider longer periods of deferment to be gap years. Therefore, it would be prudent to examine whether students who defer for only one year have different outcomes than other individuals. Additionally, this dissertation was not able to look at students who deferred for more than four years. Future research could include these individuals to see how a longer period of deferment relates to academic outcomes in college.

Another variable that could be included in future research is life course transitions. Roksa and Velez (2012) showed that there are relationships between life course transitions and postsecondary success, but life course transitions were not included

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in the present study because doing so would have diminished the ability to measure the relationship between deferment and college GPA and attainment.

While institutional selectivity was not a moderator on the relationship between deferment and postsecondary success in the present study, the conflicting findings from the bodies of literature on gap years and delayed entry indicate that there may be other variables that moderate the connection between deferment and academic performance in college. This aligns with ecological systems theory, which posits that it is important to consider how variables interact with one another (Arnold et al., 2012). For example, results from this dissertation showed that students at highly selective colleges who deferred entry had substantially lower levels of academic preparation than their classmates who pursued immediate enrollment. Therefore, I suggest that future research examine whether academic preparation acts as a moderator between deferment and college GPA and attainment. It would also be prudent to explore whether SES moderates the relationship between deferment and college success.

On the whole, ecological systems theory emphasizes the importance of examining many factors and the interactions between them. While this dissertation adjusted for individual student characteristics like SES, sex, and race, it did not include variables such as length of deferment, deferment activities, and life course transitions and their timing. Future studies should not just examine one of these variables, but rather include them all to better understand the effects of each and how they interact to promote and/or impede student success in college.

Lastly, when considering the pipeline from high school to college graduation, an important aspect of many students' experience is community college. The present study

did not include students who attended community college after high school, but future studies can build off this one by looking at the relationships between deferment and the success of students who begin their postsecondary careers at community colleges.

**Additional Ways to Enhance Future Research**

As mentioned above, ELS:2002 did not capture robust information on students' deferment activities. Going forward, future large-scale national surveys, such as those administered by NCES, should include more specific information about the activities students pursue if/when they defer entry to college. If future surveys gave respondents the option to indicate whether or not they partook in a formal gap year program, or report how many hours they spent in a typical week pursuing various activities, then researchers could see what sorts of activities, if any, were related to higher levels of postsecondary success.

Future research on college deferment can also strive to reduce selection bias. One way to do this is by collecting data on more variables, like activities pursued during deferment, and adjusting for them (Goesling & Lee, 2015). Alternatively, future research on college deferment could reduce selection bias and ensure similarities between students who defer entry and those who do not by utilizing quasi-experimental techniques such as propensity score matching.

Another way future research could build off of this study is by using multilevel modeling. A limitation of this dissertation is that it did not utilize such an approach despite the fact that models contained individual and institutional variables. Therefore the results were prone to clustered standard errors. In response, I interpreted p values more

cautiously (Thomas and Heck, 2001), but subsequent studies should see if multilevel analyses yield different results.

An exciting opportunity for future research on college deferment is for colleges that offer gap year programs to their incoming students to collect data on the experiences of these individuals. Colleges like Tufts University and Princeton University could analyze readily available data on students that participated in the institutions' "bridge year" programs to see how these students performed academically. They could also examine how participants fared in their careers and whether they have contributed financially to their alma maters. Gap year advocates and scholars of college deferment alike would be well served if researchers explored outcomes associated with participating in these programs.

Future research can also align more closely with previous studies on gap years to better examine whether students at the most selective colleges in the United States benefit from taking a gap year. As mentioned previously, this study defined highly selective institutions as those with a Barron's rating of 1 or 2. While limiting the definition of highly selective colleges to institutions with a rating of 1 may have been better aligned with prior research on gap years, doing so would have greatly limited the statistical power of analyses given the demographics of the ELS:2002 sample. A sample with more individuals who attend the most competitive institutions in the United States after deferring entry would enable such analyses.

Many of the studies cited in this dissertation utilized quantitative methods. Tenser's research (2015) is an exception to this, as her research focuses on how students' deferment experiences shaped their personal and academic preparation for college.

Additional qualitative research on the experiences of students who defer entry to college is called for based on the results of the present study.

Subsequent qualitative research could look at students who deferred entry to college and went on to attain their degrees, as well as students who entered college after deferring but failed to complete their undergraduate coursework. It would be interesting and relevant to dive into these students' experiences and how deferring entry influenced their college careers and may have helped or hindered their postsecondary academic achievements. Qualitative research could also be conducted to identify the drivers that lead to the demographic trends that surfaced in this dissertation, such as the relatively few Black and female students at highly selective colleges who deferred entry.

## Conclusion

This study on the relationship between deferment and postsecondary success showed that students who deferred entry were less likely to attain a college degree in four years and had lower GPAs than their counterparts who enrolled in college immediately after high school. Despite indications from the literature on gap years, institutional selectivity did not serve as a moderator on this relationship, as students who deferred entry and went on to attend highly selective institutions experienced lower levels of postsecondary success than their peers who did not postpone college. The same was true for students who enrolled at less selective institutions.
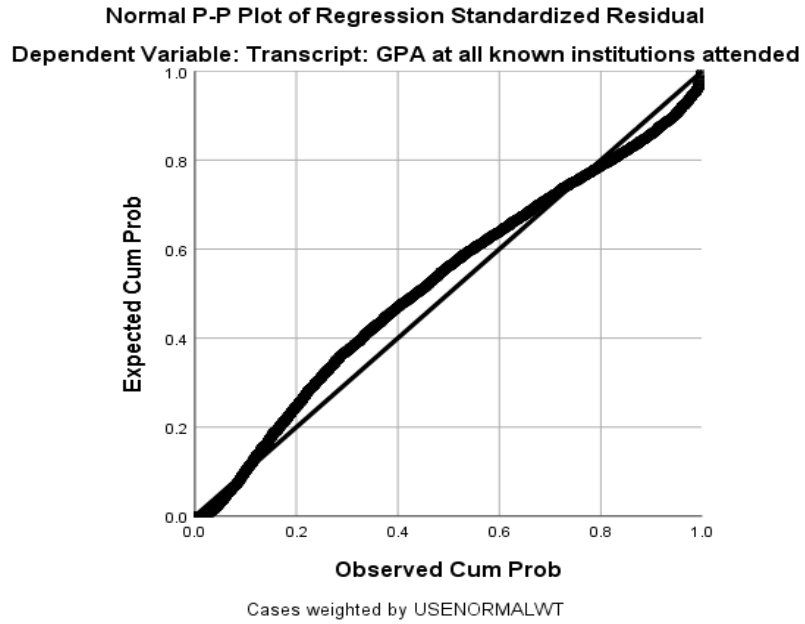
These findings support existing literature on delayed entry, which has linked college deferment in the United States with lower attainment rates. Additionally, the results failed to explain how previous gap year research conducted at highly selective colleges have exhibited positive relationships between deferment and GPA. The literature

review and results from this dissertation raise concerns about the supposed correlation between deferring entry and postsecondary success that gap year studies have shown. The relatively small samples of US-based gap year studies and the failure to statistically adjust for relevant covariates are red flags that should inspire caution among students, families, counselors, and policymakers when they consider pursuing or promoting deferred entry.

Despite the consistently negative relationship between deferred entry and postsecondary success reported in this study, a key takeaway from this dissertation is that deferred entry is a complex and nuanced phenomenon. Some prior studies on delayed entry and gap years have done a disservice to their audiences by reaching for one-size-fits-all takeaways, implying that college deferment is generally beneficial or detrimental to students.

Going forward, scholars should carefully delineate between different types of deferment, whether that entails differentiating them by length, activities pursued, or otherwise. Furthermore, researchers should continue to explore factors that may moderate the relationship between deferment and postsecondary success, while also recognizing the important changes that have occurred in student deferment behaviors in recent years, as well as the novel opportunities available to students who postpone starting college. Hopefully scholars will adhere to this advice and build off this dissertation to generate knowledge that can be used to promote student success in college.

# APPENDIX: ADDITIONAL FIGURES



**Normal P-P Plot of Regression Standardized Residual**

Dependent Variable: Transcript: GPA at all known institutions attended
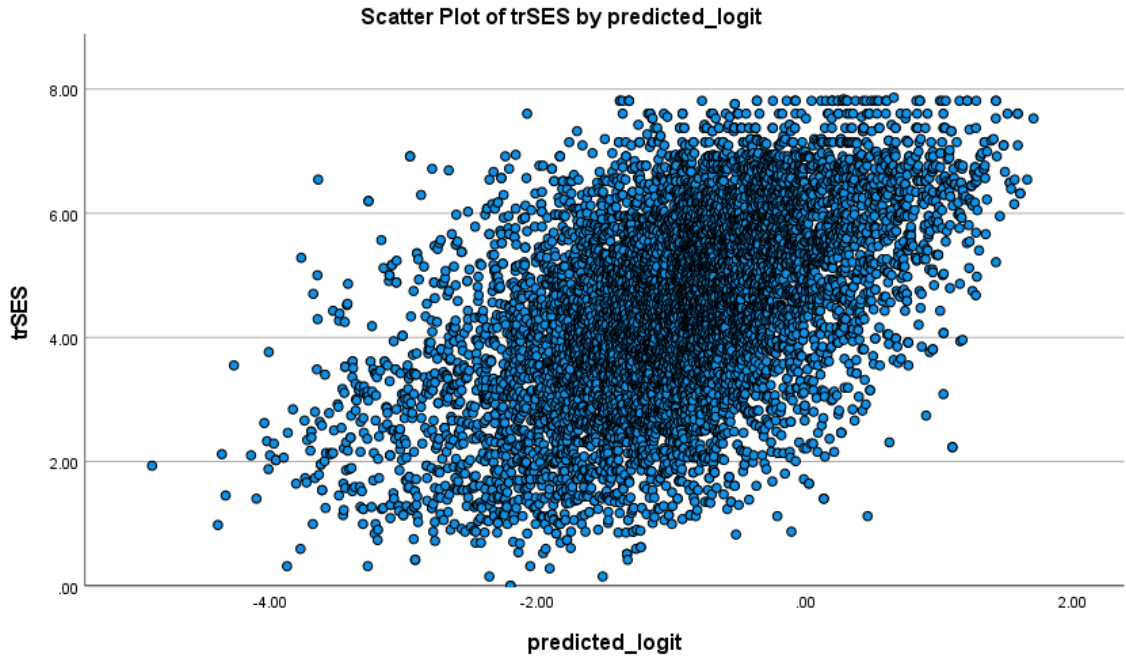
Cases weighted by USENORMALWT

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

**Figure 9. Test for Normality Results**
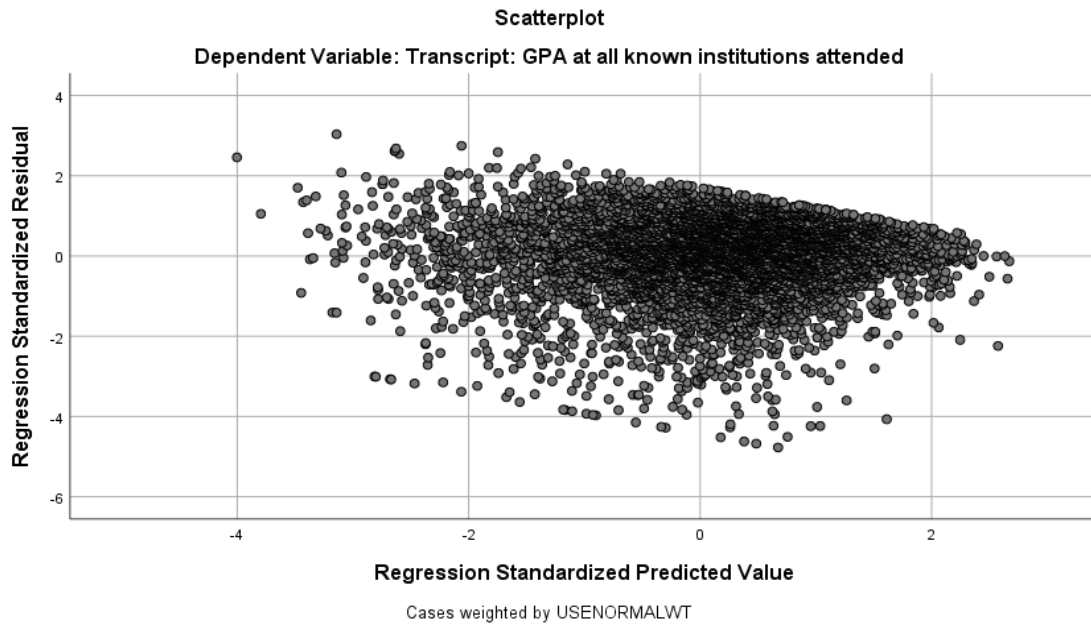
Figure 10. Test for Homoscedasticity Results

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

**Figure 10. Test for Homoscedasticity Results**

**Scatter Plot of trSES by predicted_logit**

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2002 Educational Longitudinal Study of 2002 (ELS:2002).

**Figure 11. Scatter Plot of SES and Logit of Dependent Variable**

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